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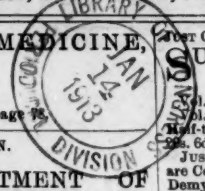

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The Horace Dobell Lectures
ON
INSECT PORTERS OF BACTERIAL INFECTION.

Delivered at the Royal College of Physicians of London, November, 1912,

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LECTURE I.

MR. PRESIDENT,—I would first of all express to you, Sir, and the Censors of the College my appreciation of the honour you have done me in electing me to deliver the Horace Dobell lecture. I feel, however, that it will be impossible for me to do justice to the fine spirit which actuated the founders of the lectureship during their lives' work.

To successfully interfere in bacterial diseases of man and animals it is most important to know accurately the life-history of the parasite outside the host—how it leaves the old host, how it enters a new host, and where and how it passes the intervening period. If we are in possession of these facts our efforts in the struggle can at any rate be intelligently directed and concentrated against the most vulnerable point of the enemy. The exercise of an adverse influence upon bacteria, once they have gained a footing in the body, has hitherto not been generally successful, although recent developments in chemotherapy have shown that there is ground for optimism in this direction also.

In the early days of bacteriology, before the large number of pathogenic bacteria had been discovered and their peculiarities had been studied, it was generally assumed that bacteria once let loose from the body survived long periods upon inanimate objects and in water, soil, &c.; and efforts at prevention were directed to an indiscriminate disinfection of the belongings and surroundings of the patient. Some bacteria do, indeed, possess considerable powers of survival under such circumstances, and I would not be understood to deprecate measures of general disinfection. The majority of pathogenic organisms, however, are fortunately delicate creatures, and rapidly succumb to such adverse influences as drying and sunlight.

Another factor which must not be lost sight of is that many organisms which have acquired by selection the property of withstanding the adverse influence obtaining in the animal body fare ill in the competition with hardy saprophytic colleagues outside the body, and if certain individuals do survive, these, whilst acquiring the capacity to live upon extra-corporeal nutriment, diminish at the same time in pathogenicity. In other words, the conditions select a strain tending more and more towards saprophytism and away from parasitism. For these reasons it behoves us to be especially on the look out for any machinery through the agency of which bacteria may be rapidly conveyed from sick to healthy, and their travels made easier for them.

In not a few diseases the infective agent usually passes almost directly from patient to patient—such are syphilis, plague-pneumonia, diphtheria, measles, scarlet fever, small-pox, and numerous parasitic skin diseases. The spread of such highly infectious diseases can be dealt with by isolation and segregation of contacts, for their range is small.

Of recent years much attention has been bestowed upon the study of the rôle of insects in the transmission of disease. It is not my intention to deal with these discoveries as to the essential part played by insects in the transmission of protozoal parasites made by Smith and Kilbourne, Bruce, Ross; Reed, Carrol, and Agramonte in the case of the transmission of Texas fever, nagana, sleeping sickness, malaria of birds and animals, and yellow fever respectively. It may, however, be pointed out that it was these researches which focused attention upon the possibility of bacterial diseases being conveyed by a similar agency. In the latter case the insect plays a less essential part, and no particular phase in the life-history of the parasite takes place within it. I have accordingly, following a suggestion of my friend Colonel Alcock,[1] employed the term "porters" to describe this passive rôle of insects in the spread of contagion.

HOUSE FLIES.

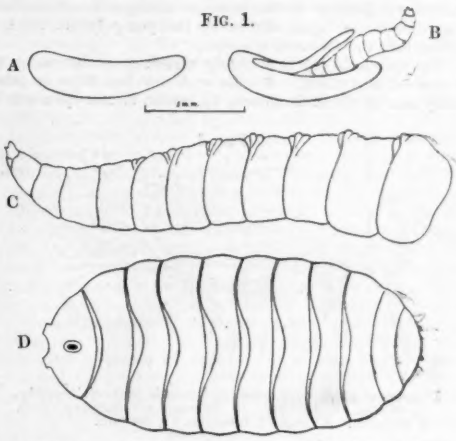
A deal of attention has been paid to flies lately, in view of their possible influence in the dissemination of infection, more particularly in the case of such diseases as cholera, typhoid fever, and infantile diarrhœa, where the infective agent escapes from the intestine and new infections are taken in by the mouth.

The first question is, Can the fly convey infection? Before referring to the numerous experiments which have afforded an answer, I will briefly refer to those points in the life-history, structure, and habits of the house fly which are of assistance in appreciating how it may play such a rôle. These subjects have been submitted to careful inquiry during the last few years, particularly in America and this country, and, thanks to the observations of Lowne (1890), Howard (1912), Newstead (1907 and 1909), Griffith (1908), Hewitt (1910), and Graham Smith (1910), we are now well acquainted with this insect, which has perhaps most obtruded itself upon the attention of man, but intimate knowledge of which was, until recently, curiously lacking.

Life-History.

The female fly produces about 120 eggs at each laying, and may produce four broods. Under ordinary conditions the eggs are mostly laid on horse, pig, or cow manure, but the excreta of almost any animal, or other fermenting refuse, suffices. (Fig. 1.) The eggs are sausage-shaped with one

FIG. 1.



A, The egg. B, The larva emerging. C, The half-grown larva. D, The pupa.

end sharp, glistening white in colour, and about 1·5 mm. in length and 0·3 mm. in their greatest diameter. The eggs hatch in from three days to eight hours, according as the temperature ranges from 50° to 80° F. The larva is a little active grub 2 mm. long, with a sharp anterior and a blunt posterior end. The larval stage lasts from five days to three weeks according to temperature. At the time of pupation it is 6 to 9 mm. in length. Pupation lasts from five days to a month according to temperature. Thus the whole cycle, from laying of egg to emergence of the fly, occupies from ten days to two months, according as the weather be warm or cool. Shortly after emergence from the chrysalis the young fly spreads its wings, which soon harden, and flies away in search of food. The young female is ready to lay its first batch of eggs in about ten days, or even sooner in warm weather.[2] During winter a few flies survive in warm and secluded places. In the spring these start the next year's supply. The possible progeny of one female fly from April to September have been estimated at 10^{15}. Howard, of the United States Department of Agriculture, estimates that in

[1] Entomology for Medical Officers, London, 1911.

[2] No doubt the cycle may be much shorter or longer under a wider range of temperature than that from which these records have been taken.

40 days the descendants of the fly might number 12 millions, or 800 lb. weight.

Structure and Habits.

The only points in the structure of the fly it is essential to direct your attention to are the legs and feet and the general arrangement of the alimentary apparatus. These will be sufficiently obvious in the diagrams. (Figs. 2 and 3.) Please note that the feet are covered with minute hairs. They are, indeed, more numerous and finer than in the diagram, and extremely fine ones are also placed upon the pads (these are stated to secrete a sticky substance by means of which the fly grips), the basal part of the claws, and the distal stiff hair which projects from the end of the last joint of the tarsus. (Fig. 2.) Each leg is like a minute paint brush,

FIG. 2.

A leg and foot of a fly.

which is applied to the surface of whatever it rests upon. When this is water the hairs do not appear to be wetted.

The essential parts of the alimentary canal are a gullet, stomach, crop, intestine, and rectum. (Fig. 3.) The gullet is prolonged to a minute opening between the flaps of the proboscis, halfway down which it is joined by the salivary duct (S.D.). At the entrance to the stomach it is bifurcated, and one limb of the bifurcation is extended backwards to the bilobed crop. By a valvular apparatus at the entrance to the stomach the insect can direct the liquid driven by the pump (P) in its trunk either into the stomach or crop.

The proboscis (P) is a highly elastic muscular organ with universal movement. At the end are two flaps or labella (only one of which is shown, L), which it can open out like

FIG. 3.

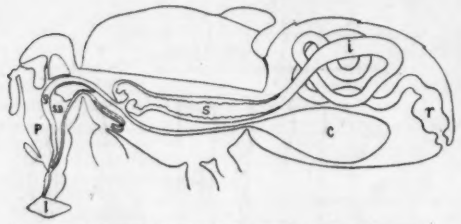


Diagram of alimentary canal and mouth parts of house-fly.
P, Pump. *l*, Labella. *g*, Gullet. SD, Salivary duct. S, Stomach. C, Crop. I, Intestine. *r*, Rectum.

the leaves of a book and apply the medial surfaces to the material it feeds upon. From the middle line or hinge minute chitinous channels pass outwards to the margin. These are seen in the diagram of the front view of a fly's head (Fig. 4, CH), in which the labella are shown opened out and facing forwards. These tubular structures are strengthened at frequent intervals by chitinous rings like a trachea, but are not complete tubes, being open to the surface by a minute linear channel with lateral bays in it. At the base of the trunk a number of muscle fibres are attached to the gullet by the peristaltic contraction of which fluid is pumped up from the mouth and propelled into the stomach or crop.

The structural arrangement of the flaps of the trunk acts as a filter. Graham Smith (1911) is of opinion that solid objects larger than 0·006 mm. seldom pass into the gullet. According to Nicoll (1911), the ova of such tapeworms as do not exceed 0·035 in their smallest diameter may be swallowed. These ova must, therefore, get into the mouth direct. When feeding on a liquid the fly applies the labella to the surface and sucks the liquid through the "strainer" first of all into the crop. When this is full some goes into the stomach. In the case of solid material, such as sugar, dried blood, or sputum, the insect must first dissolve the material. This is done by pouring saliva upon it, or more generally by regurgitating some of the contents of the crop (Graham Smith, 1910).

Graham Smith (1910) by feeding experiments with coloured syrup found that the meal was first taken into the crop, and subsequently transferred to the stomach at leisure. The fly could, however, fill first its crop and then its stomach. In a quarter of an hour the meal had passed on to the upper third

FIG. 4.

Front view of a fly's head, showing proboscis and chitinous channels (CH); E, E, Eye.

of the intestine, and in a warm incubator at 37° C. reached the rectum within an hour. The fly seems to keep some of the fluid in its crop for days.

A well-fed fly deposits fæces abundantly. Graham Smith (1910) noticed flies defæcating ten times in the first hour after feeding. A curious habit of flies to which, as far as I know, attention was first drawn by Graham Smith, is the regurgitation of the contents of their crops. This has already been referred to as a means by which they are enabled to feed upon dry material soluble in water. They do this very frequently when walking about over a clean glass, possibly with the idea of extracting nourishment from it. A fly after a good meal may often be seen blowing fluid bubbles from its trunk, and sucking them in again, as in the diagram, Fig. 5, perhaps for practice.

FIG. 5.

A fly blowing bubbles.

Carriage of Bacterial Infection by Flies.

From the above account it is clear that there are *a priori* reasons for suspecting the fly of carrying bacterial infection. Born in a dunghill, it spends its days flitting between the sugar basin, milk-pan, and any fæcal matter available. Its hairy, probably sticky, feet, and the habit of regurgitating the contents of the crop and defæcating at frequent intervals suggest it to be an excellent inoculating agent for any bacteria it may pick up in the satisfaction of its unsavoury tastes.

That it does, indeed, operate in this way has been abundantly demonstrated. Flies which have wandered over cultures of organisms and afterwards been allowed to walk upon sterile agar plates, leave a rich crop of germs as their footprints, which can be demonstrated by subsequent incubation. Castellani (1907) transferred yaws to monkeys in an analogous way.

The carriage of infection in the alimentary canal and its

deposition by regurgitation or fæces has also been shown over and over again (Grassi (1883), Maddox (1885), Alessi (1888), Celli (1888), Sawtchenko (1892), Uffelmann (1892), Yersin (1894), Nuttall (1897), Firth and Horrocks (1902), Manning (1902), Hayward (1904), Lord (1904), Chantemesse (1905), and Buchanan (1907)).

These modes are probably more important than the carriage of bacteria upon the exterior. Many pathogenic bacteria would soon die from desiccation on the appendages of the insect, and at any rate the number so conveyed is small compared to those contained in its crop and intestine. Carriage within is certainly more lasting, for Graham Smith (1910), to whom we are indebted for the most thorough investigation of this subject, isolated typhoid and other bacilli from the intestinal contents of flies six days after feeding on material containing the organism under test. The fæces ceased to afford growths after two days when typhoid bacilli were the infecting organism used, but with a more robust organism, such as anthrax, which can protect itself from the effects of drying, the time was much longer.

The accompanying table (Table I.), taken from Dr Graham Smith's report, summarises the result of his experiments on the length of time during which various bacilli can be recovered from the outside and inside of flies fed on infected material. As the author is careful to point out, gross infection was produced in these experiments by feeding upon pure cultures, and they do not do more than indicate the duration of life of various pathogenic bacteria under favourable conditions.

TABLE I.—*Showing the Longest Period after which Organisms were Recovered from Flies Fed on Cultures.*

Organism.	Legs.	Wings.	Head.	Crop.	Gut.	Fæces.
B. typhosus.	—	—	—	—	6 days.	2 days.
B. enteritidis.	7 days.	—	7 days.	8 days.	7 ,,	0 ,,
B. tuberculosis (culture).	—	—	—	3 ,,	16 ,,	13 ,,
B. tuberculosis (sputum).	—	—	—	—	7 ,,	5 ,,
Yeast.	2½ hrs.	2½ hrs.	2½ hrs.	2 days.	3 ,,	2 ,,
B. diphtheriæ.	5 ,,	5 ,,	5 days.	7 ,,	5 ,,	2 ,,
B. anthracis (no spores).	2 days.	—	4 ,,	5 ,,	3 ,,	2 ,,
V. choleræ.	30 hrs.	5 ,,	5 hrs.	2 ,,	2 ,,	30 hrs.
B. prodigiosus.	8 days.	12 ,,	11 days.	5 ,,	17 ,,	6 days.
Anthrax spores.	20 ,,	20 days.	20 ,,	13 ,,	20 ,,	13 ,,

Bacot (1911), Ledingham (1911), and Graham Smith (1911) have further shown that in the case of larvæ fed on material infected with various organisms—*B. pyocyaneus*, *B. typhosus*, and *B. anthracis* respectively—the infection may be carried through the chrysalis stage and recovered from the contents of the intestine of the fly after emergence. Fortunately, however, according to Ledingham, *B. typhosus* leads a precarious existence in competition with the natural bacterial flora of the larvæ and pupæ.

There are numerous recorded instances in which the pathogenic organisms of cholera, typhoid fever, phthisis, anthrax, and plague have been recovered from the interior or dejections of flies which have been captured in the immediate neighbourhood of cases of the disease, or in the last two, of carcasses of animals dead from the disease. Cholera vibrios were isolated from wild flies under these circumstances by Tizzoni and Cattani (1886), Simmonds (1892), and Tsuzuki (1904); typhoid bacilli by Hamilton (1903), Ficker (1903), Faichnie (on seven occasions) (1909), Cochrane (1912), and Bertarelli (1910); tubercle bacilli by Spillmann and Haushalter (1886), Hofmann (1888), Lord (1904), Hayward (1904), Cobb (1905), and Buchanan (1907); anthrax by Cao; and plague bacilli by Yersin (1894) and Hunter (1906). The spread of ophthalmia in hot countries has, on good grounds, been attributed to the agency of flies in carrying the Koch-Weeks bacillus and the gonococcus from eye to eye (Budd (1862), Laveran (1880), Howe (1888), and Axenfeld (1907)). The seasonal and local prevalence of ophthalmia corresponds with that of flies, and a visit to Egypt during the fly season is sufficient to convince one that this must happen.

ARE FLIES THE DETERMINING FACTOR IN EPIDEMICS?

Although, however, flies may be discovered with the infection of a number of diseases in or upon them, and by their habits may not unlikely serve as agents in transferring infection, it by no means follows that they are the determining factor of epidemicity in the case of cholera, typhoid, dysentery, &c. In the case of fulminating epidemics of typhoid and cholera associated with an infected water-supply this is obviously not so.

Flies in Relation to Typhoid Fever.

The conclusion that fly transmission is the principal means of spread of typhoid fever in military encampments and stations has been arrived at by a number of competent observers, amongst them being Veeder (1899), Reed, Vaughan, and Shakespeare (1901, in their report on the Origin and Spread of Typhoid Fever in the United States Military Camps during the Spanish War of 1898), Tooth and Calverley Smith (1903), Purdy (1909), and Wanhill (quoted by Purdy).

The sanitary arrangements of a military camp are not exactly those of the Ritz Hotel, and the prevalence of flies in late summer can hardly be appreciated by those who have not had the experience. The conditions are most favourable for fly transmission, and the circumstantial evidence against flies was so strong as to have left no doubt in the mind of the American Commission that these insects play a large share in disseminating infection, for page 28 of their general statement and conclusions reads thus: "Flies undoubtedly served as carriers of infection."

An estimate of the fly population and its relation to admissions of enteric fever was made by Ainsworth (1909) in Poona. The observations showed that enteric fever had a very definite season, commencing at the end of the hot, dry weather with the onset of the rains, and reaching a maximum a few weeks after their cessation. The abundance of flies increased also soon after the beginning of the rains, but earlier than the admissions for enteric fever, and speaking generally, the fly curve antedated that for cases of enteric fever by about one month. Taking into account the incubation period for the disease, this is in agreement with the view of a causal relation between fever and flies in Poona. The number of observations is unfortunately small.

In considering the possible influence of flies in the spread of typhoid fever in a well-sewered city, it must be remembered that the opportunities for flies to pick up the infection are vastly less than under the conditions of a military encampment, or even in rural surroundings. In large cities, no doubt, dejecta and urine from patients may be left available to flies, but the bulk goes promptly into the main drain. The discovery in cities like London and Manchester of the majority of cases of typhoid fever and their removal to hospital before the period when the excreta contain large numbers of bacilli must also greatly reduce the liability to the dissemination of the disease by flies. The typhoid carriers, however, remain.

Dr. J. Niven (1910) has made observations upon the prevalence of flies in Manchester since 1904. From 12 to 34 bell traps were served out to the inhabitants of small dwellings in different quarters of the town, and the catch was collected every few days by his inspector. By these painstaking observations data have been obtained which, although not extensive, are sufficient to afford information as to the general time relationship between fly prevalence and the incidence of enteric fever and infantile diarrhœa respectively. These observations were communicated to the Epidemiological Section of the Royal Society of Medicine by Dr. Niven in his interesting presidential address in 1910. It must be remembered, however, that the number of flies entrapped in 12 or 17 rooms indicates only in a general way the prevalence of these insects in a large city, so that too much significance must not be attached to other than the main features of the record.

On pp. 62 to 69 of Dr. Niven's paper are plotted the numbers of cases of enteric fever (commencing) and the diarrhœa deaths for each week of the years from 1891 to 1908. Whilst the latter show well-marked rises during some 10–12 weeks of the summer, the seasonal prevalence of the former is not so striking. Speaking generally, the typhoid season in Manchester is considerably later than the diarrhœa season, and the cases of enteric fever reach a maximum in late autumn at a time when most of the flies have

already disappeared. The census of flies commenced in 1904, and coincides for the years 1904–1909 fairly well in time with the diarrhœa deaths, if these are antedated 10 days to allow for the average period ensuing between commencement of the disease and death. If we assume that the same close time relation existed throughout, the observations taken as a whole seem to me to lend little support to the view that typhoid fever in Manchester is to any material extent dependent upon transmission by flies.

The time relation of fly prevalence and cases of typhoid fever was also studied in Washington during 1908 by Rosenau, Lumsden, and Kartle (1909) in collaboration with Howard, entomologist to the United States Department of Agriculture. In Washington in 1908 the flies (musca domestica) appeared in considerable numbers in April and reached a maximum in July. During August and September they steadily diminished to about one-third and rose again in October. The relation of the two curves was not such as to suggest that flies are an important factor in the dissemination of typhoid fever in Washington. In a subsequent report on typhoid fever in Washington, Lennoden and Anderson (1911), from an analysis of the incidence of typhoid fever upon the population using privies or yard closets, discovered that the greater prevalence of the disease among these persons during the summer coincided with the fly season.

Fig. 6 shows the time relation of fly prevalence to notifications of enteric fever for London during 1908. The data are taken from Dr. W. H. Hamer's (1909) observations giving the mean number of flies caught each day in 141 situations grouped around nine centres. The observations being upon a larger scale the sampling was presumably more representative of the fly population than the records in Manchester. I have antedated the records of the number of cases of enteric fever by three weeks, 7 days for average lapse of time prior to notification, and 14 days for average incubation period (Klinger, 1909). It will be seen that the number of cases of enteric fever rises steadily during the fly season, but that the rise continues independent of the fact that flies are rapidly diminishing, and reaches a maximum at a time when they have retired for the winter.

As regards seasonal incidence of typhoid fever 1908 is fairly typical of what has occurred in London during the last 20 years. As the weather becomes warmer the number of infections with typhoid fever increases and is not cut short by the fall in temperature usually occurring in September, but reaches a maximum in October and November—that is, at a time when there are hardly any flies about. Whether, as Dr. Niven believes, increased fly prevalence is a factor in determining the increasing incidence in Manchester and London at the end of the summer, it seems to me impossible to say; but, taking into account the circumstantial evidence against the fly, this may not unlikely be the case, but it is clear that other causes are operative and that epidemics of typhoid fever occur in these cities in the absence of flies.

This is in striking contrast to the observations in military camps both during the Spanish-American War and the Boer War. In both these instances, with the onset of cooler weather and the first frosty nights, the nuisance from flies was as once relieved and the cases of enteric fever diminished shortly afterwards.

Flies in Relation to Infantile Diarrhœa.

As the infective agent of infantile diarrhœa has not been identified, no direct evidence that flies do on occasion convey the germs of this disease is available. It is probable that more than one etiological factor for infantile diarrhœa exists. Different organisms have been found to be particularly prevalent in the stools in different epidemics in various localities. In America some of the epidemics have been associated with the presence of a dysentery bacillus (*B. Flexner*) in the stools—Wollstein (1903), Park (1903), Duval and Schorer (1903), Cordes (1903), Weaver and Tunnicliffe (1905). In other epidemics in America no dysentery bacilli were found, and an epidemic in Vienna investigated by Jehle and Charleton (1905) was not found to be associated with dysentery bacilli. Metchnikoff (1909) is of opinion that B. vulgare is the causal organism.

A search for evidence of a causal agent was conducted on a large scale by Morgan (1906, 1907, 1909) and his colleagues of the Lister Institute during the epidemic in London in the years 1905, 1906, 1907, and 1908. The search was restricted to aerobic bacilli which neither fermented lactose nor liquefied gelatin—i.e., to a group which includes the dysentery, typhoid and paratyphoid, and Gaertner bacilli. Stools and necropsy material were examined from several hundred cases of the disease, and from other children. A very large number of organisms were isolated and examined, but the only one whose prevalence was found to be related to infantile diarrhœa was a non-motile bacillus of the above group, which was peculiar in that it failed to ferment mannite. It is now generally known as Morgan's bacillus No. 1. This organism was not infrequently recovered from the organs in fatal cases, and produced diarrhœa when fed to monkeys and young rats. It was rarely encountered in children not suffering from acute diarrhœa.

Morgan's bacillus has been found in flies captured from houses in which cases of diarrhœa occurred, but until its causal relation to the human disease is proven too much significance cannot be attributed to these observations.

We are, therefore, entirely dependent upon epidemiological facts in testing whether the belief in the dominant influence of the house fly in the occurrence of epidemics of infantile diarrhœa, a view which has been warmly espoused by many observers, is valid.

THE RELATIONS IN TIME BETWEEN CASES OF DIARRHŒA AND PREVALENCE OF FLIES.

Unlike the case of typhoid fever which has just been discussed, the epidemics of infantile diarrhœa in towns exhibit a close time relation with fly prevalence. Epidemic diarrhœa of children does not occur except during that season of the year when flies are abundant and active, and, as will be seen on studying the charts, the relation between fly population and cases during the summer is so striking as to suggest something more than a mere accidental dependence upon the same phenomena.

The charts, Figs. 7, 8, 9, 10, and 11, show the relation of diarrhœa and fly prevalence in time. Figs. 7, 8, and 10 are derived from Dr. Hamer's observations in London in 1907, 1908, and 1909. Figs. 9 and 11 are constructed from Dr. Niven's (1910) observations in Manchester in 1904 and 1906. I have selected these particular years from the Manchester data because they represent what happened in warm summers in which the number of cases was considerable.

The charts have undergone some manipulation at my hands. I have antedated the deaths by ten days, which, according to Dr. Niven's observations, represents the average period intervening between onset and death. They ought, no doubt, to be antedated further to include the incubation period, but I have no data to determine what this should be. In the case of Dr. Hamer's observations I have summed his tri-weekly observations and plotted the fly catch for the whole week. In this way I have eliminated most of the irregularities and obtained smoother curves. I have also added the weekly mean temperature for London for the period comprised by Dr. Hamer's observations, and in Fig. 8 for about two months previously.

The procedure adopted by Dr. Niven and Dr. Hamer to obtain data regarding fly prevalence was common in all cases. The number of flies caught on sticky paper or entrapped in a series of domestic dwellings, generally in neighbourhoods inhabited by poor people, were recorded every two or three days. This estimate of the prevalence of flies, together with the deaths from diarrhœa, were then plotted as ordinates against weeks as abscissæ. Dr. Niven's observations extend over five years, and refer to several districts in Manchester. Dr. Hamer's organisation for the capture of flies was on a larger scale, and his observations were made at various parts of London during 1907, 1908, and 1909, mostly in the neighbourhood of refuse and manure depôts where flies are bred. Another excellent series of observations was made by Dr. R. Dudfield (1912) in Paddington during the summer of 1911. It concerns a smaller number of cases, but this enabled a more intensive study of many factors contributing to the epidemic to be made.

The first point brought out by all these observations is the dependence of both the number of flies and the epidemic upon the cumulative effect of previous warm weather—as, for instance, is indicated by the earth temperature 4 feet below the surface—a fact to which attention was first drawn by Ballard (1889). The curve for flies rises first, followed

FIG. 6.

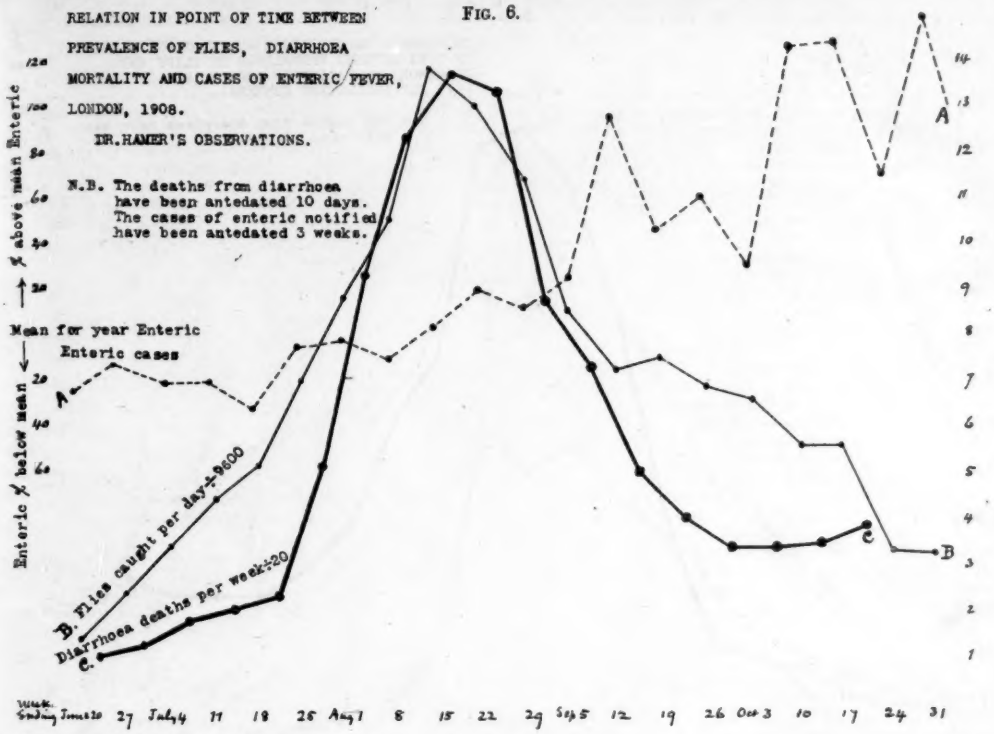

RELATION IN POINT OF TIME BETWEEN
PREVALENCE OF FLIES, DIARRHOEA
MORTALITY AND CASES OF ENTERIC FEVER,
LONDON, 1908.
DR. HAMER'S OBSERVATIONS.
N.B. The deaths from diarrhoea have been antedated 10 days. The cases of enteric notified have been antedated 3 weeks.
% above mean Enteric
Mean for year Enteric
Enteric cases
Enteric % below mean
A
B. Flies caught per day ÷ 9600
Diarrhoea deaths per week ÷ 20
C
B
C
A
Week ending June 20 27 July 4 11 18 25 Aug 1 8 15 22 29 Sept 5 12 19 26 Oct 3 10 17 24 31

FIG. 7.

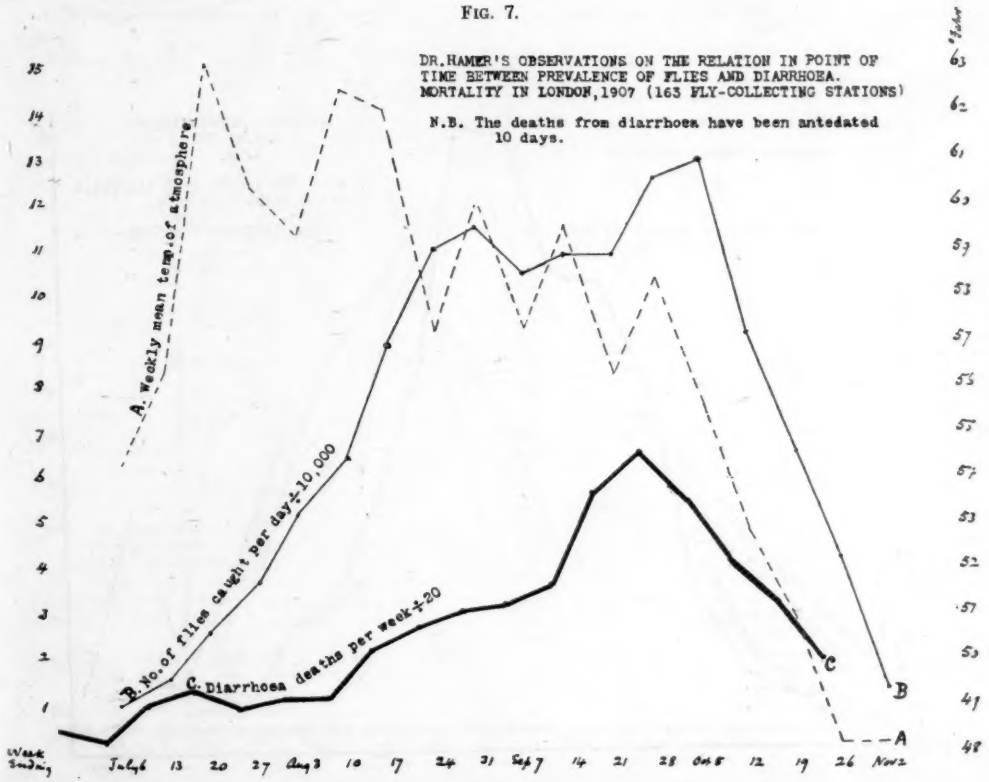

DR. HAMER'S OBSERVATIONS ON THE RELATION IN POINT OF TIME BETWEEN PREVALENCE OF FLIES AND DIARRHOEA. MORTALITY IN LONDON, 1907 (163 FLY-COLLECTING STATIONS)
N.B. The deaths from diarrhoea have been antedated 10 days.
A. Weekly mean temp. of atmosphere
B. No. of flies caught per day ÷ 10,000
C. Diarrhoea deaths per week ÷ 20
C
B
A
Week ending July 6 13 20 27 Aug 3 10 17 24 31 Sept 7 14 21 28 Oct 5 12 19 26 Nov 2

FIG. 8.

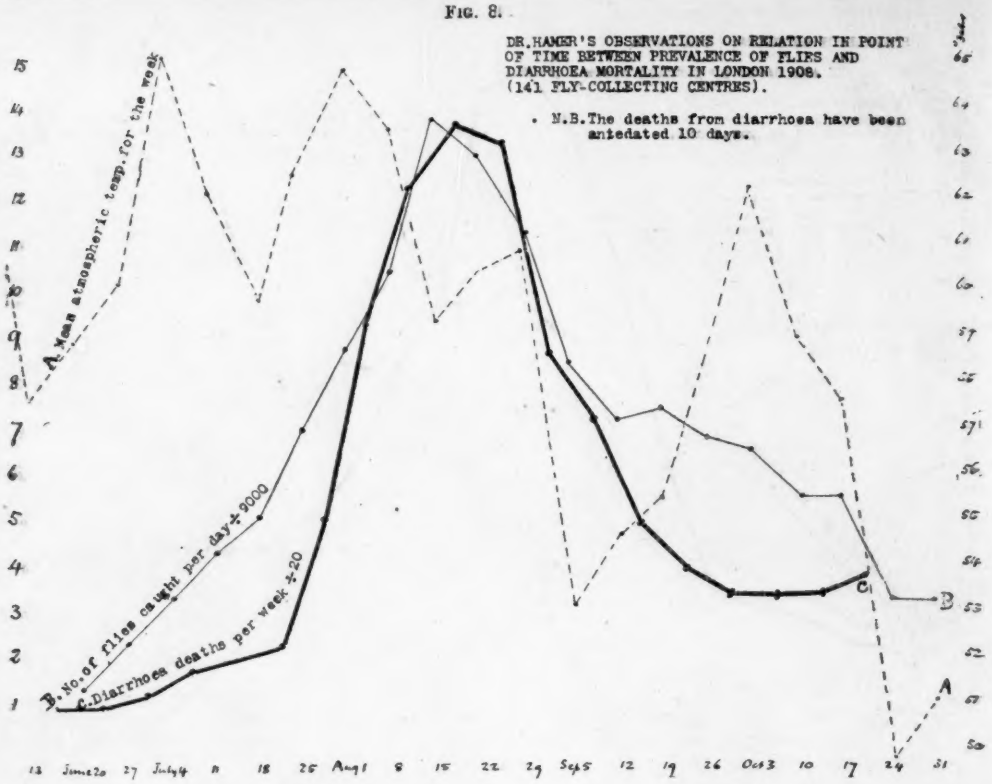

DR. HAMER'S OBSERVATIONS ON RELATION IN POINT OF TIME BETWEEN PREVALENCE OF FLIES AND DIARRHOEA MORTALITY IN LONDON 1908. (141 FLY-COLLECTING CENTRES).
N.B. The deaths from diarrhoea have been antedated 10 days.
A. Mean atmospheric temp. for the week
B. No. of flies caught per day ÷ 9000
C. Diarrhoea deaths per week ÷ 20
A
B
C
June 20
27
July 4
11
18
25
Aug 1
8
15
22
29
Sept 5
12
19
26
Oct 3
10
17
24
31

FIG. 9.

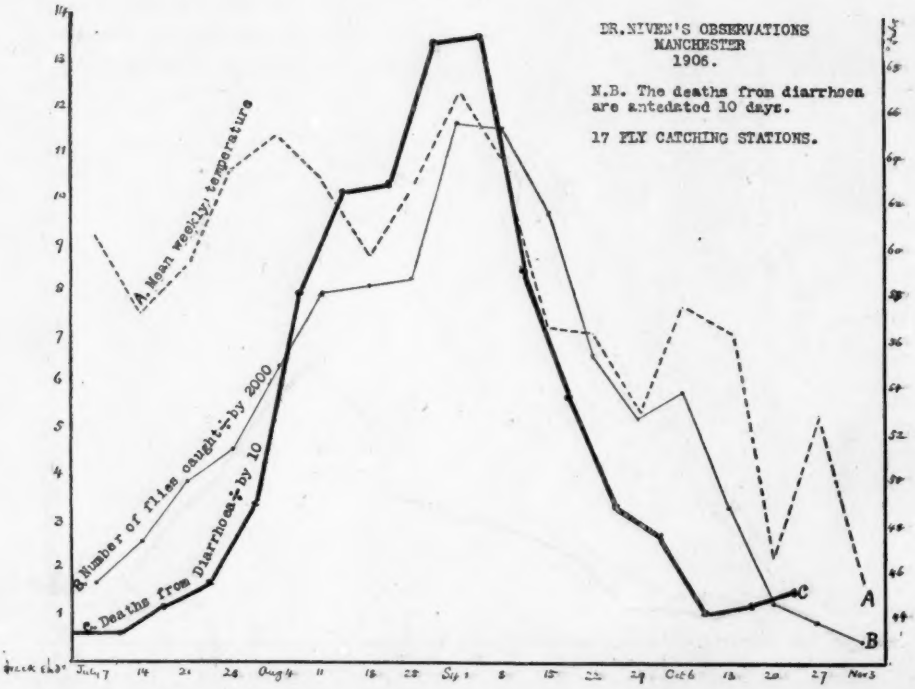

DR. NIVEN'S OBSERVATIONS MANCHESTER 1906.
N.B. The deaths from diarrhoea are antedated 10 days.
17 FLY CATCHING STATIONS.
A. Mean weekly temperature
B. Number of flies caught ÷ by 2000
C. Deaths from diarrhoea ÷ by 10
A
B
C
July 7
14
21
28
Aug 4
11
18
25
Sept 1
8
15
22
29
Oct 6
13
20
27
Nov 3

FIG. 10.

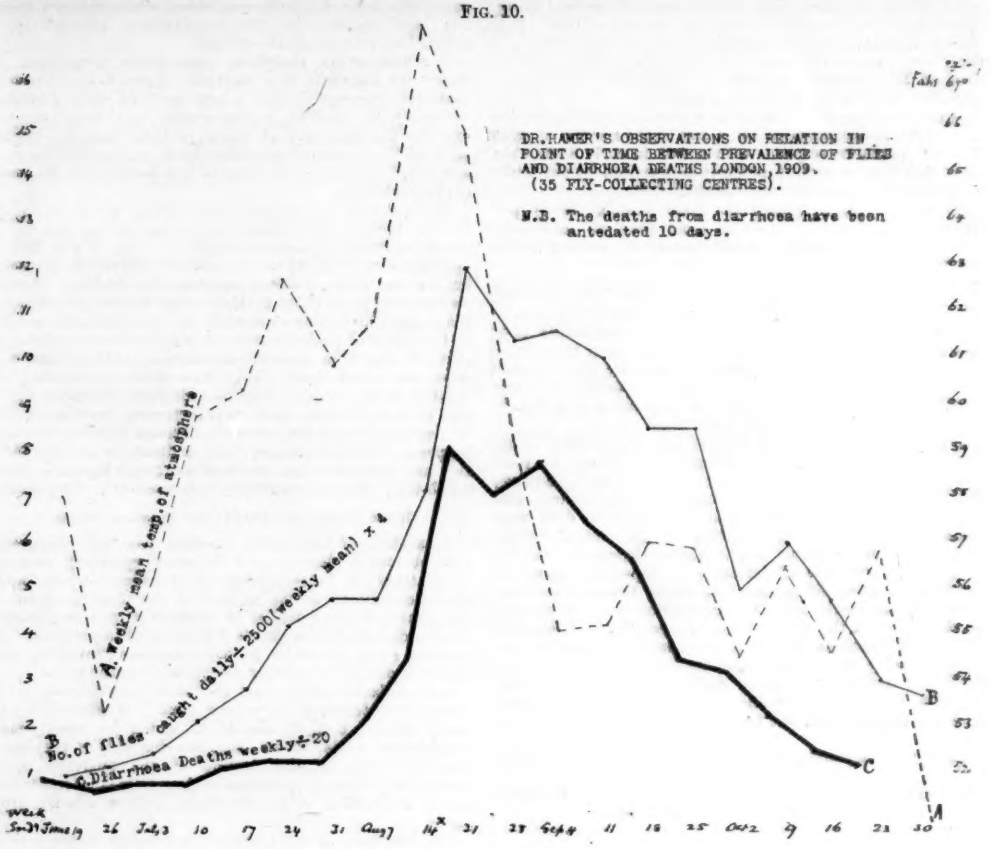
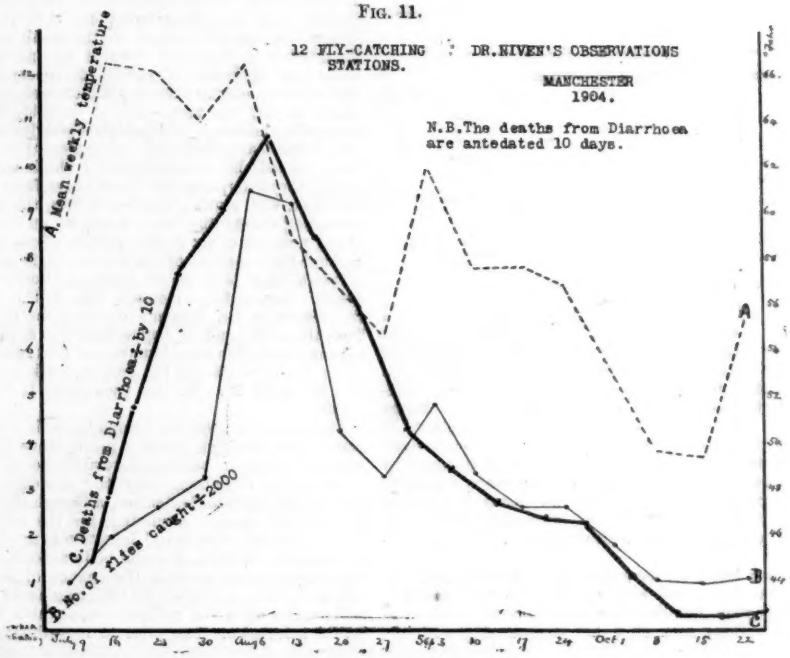

DR. HAMER'S OBSERVATIONS ON RELATION IN POINT OF TIME BETWEEN PREVALENCE OF FLIES AND DIARRHOEA DEATHS LONDON, 1909. (35 FLY-COLLECTING CENTRES).
N.B. The deaths from diarrhoea have been antedated 10 days.
A. Weekly mean temp. of atmosphere
B. No. of flies caught daily ÷ 2500 (weekly Mean) x 4
C. Diarrhoea Deaths weekly ÷ 20
Week
Su 31 July 19 26 Jul 3 10 17 24 31 Aug 7 14 21 28 Sept 4 11 18 25 Oct 2 9 16 23 30

FIG. 11.


12 FLY-CATCHING STATIONS.
DR. NIVEN'S OBSERVATIONS
MANCHESTER
1904.
N.B. The deaths from Diarrhoea are antedated 10 days.
A. Mean weekly temperature
B. No. of flies caught ÷ 2000
C. Deaths from Diarrhoea ÷ by 10
July 9 16 23 30 Aug 6 13 20 27 Sept 3 10 17 24 Oct 1 8 15 22

soon by that for cases. The latter is longer in getting going; this is particularly marked in the cool summer of 1907. Both flies and cases reach their maxima about the same time. In 1907 the number of cases is diminishing, whilst flies are still on the increase. In 1908 and 1909 both curves decline together, but that for flies more gradually.

A notable feature of the curve is that the same fly population which is accompanied by a rise in the number of cases in early August corresponds with a fall in early September. This fact has been quite properly emphasised by the critics of those advocating the importance of flies.

If we propose to regard the time relations of fly prevalence and diarrhœa cases as more than an interesting coincidence, we must find a satisfactory explanation for the above facts.

Possible Explanations of Dependence of Diarrhœa Epidemics upon the Accumulative Effect of Temperature.

The reason why the number of flies is dependent upon this factor is obviously because the generation time (cycle from egg to egg) varies with temperature and requires three weeks or upwards in our climate. Months of warm weather are, therefore, required to produce any multitude of flies from the few surviving the winter.

Why the epidemic should exhibit this dependence is not obvious. Not knowing the etiology of diarrhœa, we must assume some sort of infective agent. From analogy with typhoid fever, cholera, acute food poisoning, and dysentery we will suppose that we have to deal with some form of bacterium growing in the outside world with which our ailments might become infected. In this case, would the dose of infection be dependent upon the accumulated effect of temperature during the previous three months? Assuredly not. The generation time of bacteria is so short—in the case of bacillus coli it is 1 hour at 20° C. and ½ hour at 30°—that the number present at any moment is to all intents and purposes dependent only upon the mean temperature during the last few days. To take a homely illustration, whether one's milk sours does not depend upon the temperature last month, but last night.

In the accompanying table (II.) I have set out the rate of

TABLE II.—*Showing the Rate of Multiplication (Maximum Observed) of House Fly and B. Coli.*

Days.	House fly August–September, 1907. Brighton.			B. coli commune 20° C.
0	1 (female).			1
	1st gen.	2nd gen.	3rd gen.	
1	—	—	—	10^7 (10,000,000)
2	—	—	—	10^{14}
5	—	—	—	10^{2}
10	—	—	—	10^{70}
20	100	—	—	—
30	100	—	—	10^{720}
40	100	5000	—	—
50	100	5000	—	—
60	—	5000	125,000	10^{1440}

multiplication of *B. coli* at 20° C., and that of flies inside a house during a summer in England. You will observe that one female fly might under these conditions possess 150,000 progeny in 60 days, but the bacteria derived from one organism become innumerable in two days. Unless, therefore, the effect of two months' summer weather be to change the nature of the organism so as to enhance its virulence, it is quite impossible to account for this striking characteristic of the epidemic by chance contamination of food-supply by pathogenic bacteria. In a state of innocence regarding the etiology of the disease we have no means of knowing whether any change occurs in virulence under the influence of continued hot weather, but it is just conceivable.

On the other hand, we have excellent *a priori* reasons for supposing that flies could transmit the infective agent of diarrhœa. Anyone familiar with the domestic ménage of the average working man on a hot summer day, with the baby sick with diarrhœa and other small children to care for, must realise that the opportunities afforded for fly transmission are adequate enough.

It seems to me, therefore, that before abandoning the view that diarrhœa is a bacterial infection or making the gratuitous assumption that a long spell of warm weather is necessary to awaken pathogenicity, one must carefully examine the adequacy of the hypothesis that the dependence of the epidemic on accumulated temperature is to be accounted for by the operation of this factor upon the means of transmission.

We will now see whether this interpretation fits the rest of the facts. The greater steepness of the rise of the diarrhœa curve is consistent with this view, for at first the opportunities for a fly to transmit the infection are small, but as the cases increase opportunities increase likewise. As has been pointed out by Hamer and Peters, if variation in the number of fly transmitters of an infective agent existing in the stools of patients were the sole factor concerned, the curve for diarrhœa cases should shoot up beyond and come down later and more slowly than that representing the number of flies, because the opportunities afforded to flies to pick up the infective agent are increasing *pari passu* with the development of the epidemic. This is, however, not what happens. On the contrary, the epidemic is arrested while flies are numerous, and declines more quickly than the fly population. We are therefore confronted with the question:

What Arrests the Rise in the Epidemic Wave?

Exhaustion of susceptible material has been suggested. This obviously plays a part in every epidemic, and the observations of Peters (1910) in Mansfield—where, under similar conditions, in one section of the town the epidemic was nearly finished, whilst in another it was beginning—afford a demonstration that it is a factor of importance. As, however, small epidemics in cool summers exhibit the same feature it cannot be entirely responsible for the arrest.

Another factor which must be taken into account is the atmospheric temperature at the time. A glance at the charts, Figs. 7, 8, 9, 10, and 11, in which the weekly mean temperature is also shown, suggests that this is playing an important part, for the decline of the epidemic occurs immediately upon a considerable drop in mean temperature and a diminution of fly prevalence follows shortly afterwards.

The influence of atmospheric temperature appears to be more marked upon the number of infections than upon the number of flies. Whereas in London, 1908 and 1909, following shortly upon the colder weather, both curves drop in a remarkably similar fashion, in the small epidemic of 1907 the number of flies still remains up and even increasing, whilst the epidemic is rapidly disappearing. The same general facts emerge from the Manchester observations. We might invoke the assistance of coincident exhaustion of susceptible material, or diminished activity of flies, although still numerically sufficient, in explanation of this. They may, indeed, be operative, but I think that a completely satisfactory interpretation of the above facts and also of the fact that, with a given number of flies, the epidemic wave is ascending during the early weeks of an epidemic, and subsiding a month or six weeks later, is afforded by taking into account the influence of the variations in atmospheric temperature upon the rate of multiplication of the infective agent. Regard for a moment Fig. 8, the chart expressing the results of Dr. Hamer's observations in London, 1908. Take the weeks ending August 25th and Sept. 12th, in which approximately the same number of flies were caught. The mean temperature for the former week was 62·6° F., for the latter 54·8°. In the meantime it had been down to 53°.

The mean atmospheric temperature is a factor to which insufficient attention has been given, since the origin of the epidemic showed but small relation to it. It is capable, however, of explaining why the epidemic wave rises in August and falls in September, although the number of flies may be the same. Assuming, for the sake of argument, that some form of bacterial infection is the etiological factor in infantile diarrhœa, it would be in accordance with general experience to suppose that the chance of infection is determined by the quantity of the infecting agent imbibed. This will depend upon the multiplication which has taken place on the infected medium prior to ingestion; this in turn is a

function of the temperature at which the milk or other foodstuff has been kept.

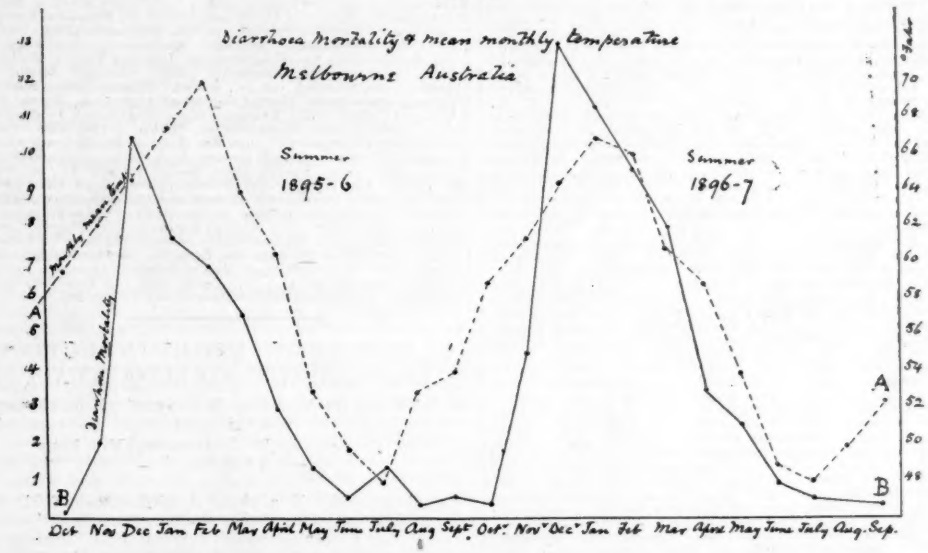
The temperature coefficient of bacterial multiplication is not higher than that governing ordinary chemical processes—viz., two to three times for 10° C., but as bacterial multiplication proceeds logarithmically a comparatively small change in rate is sufficient to produce a large difference in the number of organisms contained in, say, an infected milk, if an interval of some hours elapse between inoculation and drinking. Thus if n bacilli coli be inoculated with milk at 60° and 70° F. respectively, the number after 12 hours will be $126n$ and $4000n$ respectively.[3]

Factors Contributing to Decline of Epidemic.

We have, then, two factors which may contribute in varying degree to decline of the epidemic: 1. A fall in temperature diminishing (*a*) the activity and number of supposed transmitters; (*b*) the dose of infection which the child ingests owing to the effect upon the rate of multiplication of the infective agent. 2. The exhaustion of the more susceptible individuals.

Sometimes one, sometimes another, of the above factors appears to predominate. For instance, we have the fact, to which attention was drawn by Peters (1909), that in a much hotter climate, such as Australia, the epidemic often declines notwithstanding the fact that the temperature may continue to rise for several weeks. In Fig. 12 I have plotted from a paper by Stawell (1899) the monthly mean temperature and monthly diarrhœa mortality in Melbourne for the years 1895–96. In this city, where winter and summer succeed one another without the long intervening periods we have here, the epidemic lasts for six months instead of six weeks. It will be noticed that in 1895 the temperature continued to mount for two months after the summit of the epidemic. In this case the decline cannot be due to diminished dose of the poison owing to slower rate of bacterial growth, but must be attributed to exhaustion of susceptible individuals or to the effect upon the presumed transmitting agents, the flies. In the absence of definite quantitative observations I cannot speak dogmatically, but as far as my memory serves me I think the number of flies diminishes in Melbourne, as it does in Washington, during the hot weather. A monthly mean temperature of 70° in Melbourne indicates that there were a good many days with a maximum shade temperature of over 100°, which in that locality is associated with extremely dry north winds. Such meteorological conditions are very fatal to flies both in the larval and imago stage. On hot wind days flies have to seek shelter out of the sun or they rapidly become desiccated. For the same reason they succumb on an exposed window pane, and large numbers of dead flies accumulate on the window frame.

FIG. 12.


Diarrhoea Mortality & mean monthly temperature
Melbourne Australia
Summer 1895-6
Summer 1896-7
Monthly mean Temp.
Diarrhoea Mortality
A
B
A
B
Oct Nov Dec Jan Feb Mar April May June July Aug Sept Oct Nov Dec Jan Feb Mar April May June July Aug. Sep.

Relation between Fly-prevalence and Diarrhœa Cases in Space.

No quantitative observations upon the relation between number of flies and the distribution of cases of infantile diarrhœa have, as far I am aware, been made, but I may mention a few impressions by different observers for what they are worth. Nash (1909), who, whilst medical officer of health for Southend, made during 1904 spot maps of the epidemic there, says: "The great majority of the deaths from diarrhœa were shown to have occurred in streets in proximity to brickfields in which were deposited daily some 30 tons of fresh house refuse, which bred incalculable numbers of flies" directly the meteorological or seasonal conditions became favourable for their development.

Dr. J. Niven (1910, p. 45) is of opinion that the close correspondence between flies and cases of fatal diarrhœa receives a general support from the diarrhœa history of sanitary subdivisions of Manchester, and that the few facts available for the study of correspondence of flies and fatal cases in different subdivisions (Manchester) in the course of the same year also lend support. No other explanation, in his view, even approximately meets the case.

Peters (1910), in his very exhaustive study of the epidemic in Mansfield in 1908, paid especial attention to the possible part played by flies. From an analysis of his observations he, I think justly, came to the conclusion that the evidence pointed to the fact that, whatever part they might play as carriers from an infected household to a neighbour, flies did not bring infection with them from the manure heaps where they had been bred. Peters constantly noted that the individual seemed to be a source of infection to the neighbours adjacent to the house, within the precincts of which his excreta, if infectious, would most likely be deposited. This he points out could be most readily explained by the supposition that flies were the agents of dissemination of the infection, but from the frequent want of correspondence in different localities between numbers of flies and amount of diarrhœa, he finds no support for this hypothesis from the distribution in space of flies and cases.

I doubt very much whether any evidence of great value could be obtained upon this point. Even supposing it to be true that fly carriage is of first importance, I should expect that if all the facts were known a much higher correlation

[3] For the observations on which this calculation is based see Dr. Janet E. Lane-Claypon's paper Multiplication of Bacteria and the Influence of Temperature Thereon, Journal of Hygiene, vol. ix., 1909, p. 239.

would be discovered between diarrhœa and carelessness with regard to disposal of excreta and protection of food from the visitation of flies than between diarrhœa and fly prevalence.

Many of the facts which I have brought forward merely indicate some form of infective agent, and do not necessitate recourse to the hypothesis that carriage by flies dominates the situation. I would, however, point out: (1) that the fly-carrier hypothesis is the only one which offers a satisfactory interpretation of the extraordinary dependence of the epidemic upon the accumulated effect of temperature; (2) that it offers a ready explanation of the spread of infection to neighbouring children who have no direct personal contact with the patient; (3) that the peculiarities of the relation in time between fly prevalence and the epidemic in different localities are *not* inconsistent with the view that fly carriage is essential to epidemicity.

No other interpretation which is, so far, forthcoming is nearly so satisfactory, and it is at least worthy to guide in the meantime our efforts at prevention.

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A RECOVERY FROM INFECTIVE ENDOCARDITIS (STREPTOCOCCAL).

By HENRY HEMSTED, M.D. BRUX., M.R.C.S. ENG., L.R.C.P. LOND.

With Comments by T. J. HORDER, M.D. LOND., F.R.C.P. LOND.

IN this case Mrs. X, a young married woman of 21, the subject of a congenital lesion of the endocardium, became infected from a tooth abscess on July 6th, 1911. Ulceration of the mural endocardium resulted in innumerable infarcts in the lungs and a few in other tissues. Streptococci were isolated on several occasions from the blood-stream, and the patient, after being ill for nearly a year, has completely recovered in spite of many adventures. She was treated with autogenous vaccines and autogenous serum. In the early stages scattered pulmonary infarcts produced a picture closely simulating acute tuberculous pleuritis.

Detailed Description of Case.

The patient was known to be the subject of a loud and harsh systolic cardiac bruit, not conducted to the left, of maximum intensity at the right edge of the sternum near the fourth costal cartilage; and Dr. Aylmer Lewis, of Oswestry, who has known her professionally all her life, gave evidence that the murmur existed from birth. There was slight bulging of the præcordial ribs to the left of the sternum, and evidence—clinical and skiagraphic—of hypertrophy of the right ventricle. She had had no previous illnesses, except measles and mumps. There was some reason to infer that her father and paternal uncle may have died from ulcerative endocarditis. Dr. J. H. Drysdale wrote in 1910 that "she has, in my opinion, a congenital lesion of the heart; but not, I believe, pulmonary stenosis." Sir James Goodhart wrote to me on Oct. 6th, 1910:—

There is, as you know a permanent murmur heard over the lower

part of the sternum and for some distance round about, which is probably of ventricular origin, but which does not seem to be hampering the action of the heart much, although I am told there is palpitation now and then. There is no short breath or alteration of colour, and health seems in all respects good. I am therefore of opinion that the patient had better live an ordinary healthy life, and play such games as golf and tennis or ride with moderation. Any excessive tax upon her circulation should, of course, be avoided.

There was every reason to suppose that the bruit was caused by a congenital malformation of the right ventricle similar to that described by Dr. Arthur Keith in THE LANCET of August 7th, 1909. Dr. Keith himself examined Mrs. X on Oct. 25th, 1912, and agreed with this diagnosis. In this condition, owing to defective union of the bulbus cordis in the fœtus, the ventricle is subdivided into two chambers of varying dimensions. The lower is the true ventricle; the upper is really a dilatation of the infundibulum of the pulmonary artery, and the ostium infundibuli connected the two. The ostium is a muscular foramen with a fibrous margin covered by endothelium which is usually rough and may be covered with vegetations, thus forming an ideal site for the implantation and growth of micrococci. Its size varies greatly, but will often admit one finger or more. Signs and symptoms during life will obviously depend on the calibre of this orifice; the condition is compatible with advanced age and may give rise to no symptoms, being perhaps only discovered at a necropsy. There may possibly be a hereditary predisposition to this cardiac defect, which often co-exists with other malformations of the heart. In the excellent specimens in the Museum of the Royal College of Surgeons prepared by Dr. Keith a perforate ventricular septum is present in 9 out of 19 cases. Specimen 580.5 is an adult heart with a well-marked infundibular chamber in connexion with the right ventricle, and the ostium and adjacent heart-wall show extensive ulcerative endocarditis which proved fatal.

Mrs. X remained quite well in spite of pregnancy having occurred in April, 1911. In May Dr. Armand Routh saw her and wrote: "There is no evidence of cardiac insufficiency in the local or general condition at this moment. I advise no interference" (with the pregnancy). On July 6th, 1911, an alveolar abscess had formed in connexion with the first lower left molar, necessitating urgent treatment. After discussing the *pros* and *cons* of gas *versus* local anæsthesia, the latter method was adopted. The gum was infiltrated with novocaine by injection from a dental syringe, the molar removed, and a mouth wash containing euthymol employed. Next day Mrs. X complained of coldness, shivering, pain in the back, and headache; her temperature was 101° F., and the mouth was inflamed. Feverish symptoms persisted for three or four days, when they subsided and the patient got up and resumed normal habits, in spite of vague symptoms of headache and neuralgic pains at times. She was seen at this time and subsequently by Dr. F. C. Bottomley, and we considered the condition was due to some "septic absorption from the mouth" for which we prescribed antiseptic mouth washes. On August 15th there was pain in the left side resembling pleurodynia, temperature 100°, nothing heard. The pain speedily improved, as also did an attack of "lumbago" on August 20th.

During the next month the patient had occasional pains in the limbs, but a serious view of the case was not suggested until Sept. 25th, when very severe sciatica on the left side occurred. This was at first thought to be incidental to pregnancy, which was now just over five months advanced. On Sept. 28th Mrs. X took to her bed, and a regular type of intermittent fever developed. The temperature always remained subnormal till mid-day; then a feeling of coldness would come on, accompanied by a rapid rise of temperature to 101° or 102°, after which there was profuse sweating. Morning temperature was very low, frequently down to 96°, but the pulse-rate was persistently high, about 120. She now began to complain of pains in the chest which were accompanied by patches of pleural friction and a little later also by areas of dulness, these being generally, but not exclusively, at one or other base of the lungs. Fresh patches of "pleurisy" occurred every few days, sometimes even daily; one day there would be a rigor and pain in the chest, the next day an increase of dulness would be discovered with adventitious sounds which were either pleuritic or possibly intrapulmonary, and a few days later these signs would have partially cleared if no fresh involvement of that area had occurred. But gradually both bases, and to a less extent the left apex, became persistently dull and remained so for several months. The patient now became cyanosed and short of breath, and there was rapid wasting; by the middle of October her condition had become very serious.

The clinical picture was one of widespread pleurisy involving the diaphragm. Von Pirquet's test was repeatedly negative; no petechiæ occurred. A leucocytosis of 20,000 per c.mm. was present, but the diagnostic value of this was of course discounted by pregnancy. A few spots of blood were expectorated yielding streptococci, but no sputum could be obtained. Cultures from the median basilic veins and blood obtained by puncturing the dull lung yielded nothing at this stage.

Opinion was divided as to whether we were dealing with an acute disseminated tuberculosis or a multiple infarction of the lungs, Sir James Goodhart, who saw Mrs. X on Oct. 26th, inclining to the latter view. Mrs. X was seen every day by Dr. Bottomley at this time, and on several occasions by Dr. Hyla Greves. She got rapidly worse—her weight fell from 7 st. on Oct. 13th to 6 st. 6½ lb. on Oct. 29th, and practically the whole of both lungs became involved at one time or another. Rigors occurred nearly every day, pulse very rapid with delirium, constant cough, great dyspnœa, and cyanosis. There was no sign of disease in any other organs except the lungs.

On Oct. 30th a severe rigor with temperature of 104·2° apparently induced premature labour, and a healthy looking boy of about 6½ months was born 48 hours later with surprisingly little trouble. (Chart 1.) Oxygen, morphia, and heroin were used freely, and strychnine occasionally at this time. The placenta showed no sign of tubercle or infarcts, being healthy microscopically and otherwise. After labour and a normal puerperium, a respite in the more urgent symptoms ensued—rigors gradually abated and fever lessened—though wasting continued and the weight on Nov. 18th was 5 st. 11 lb.

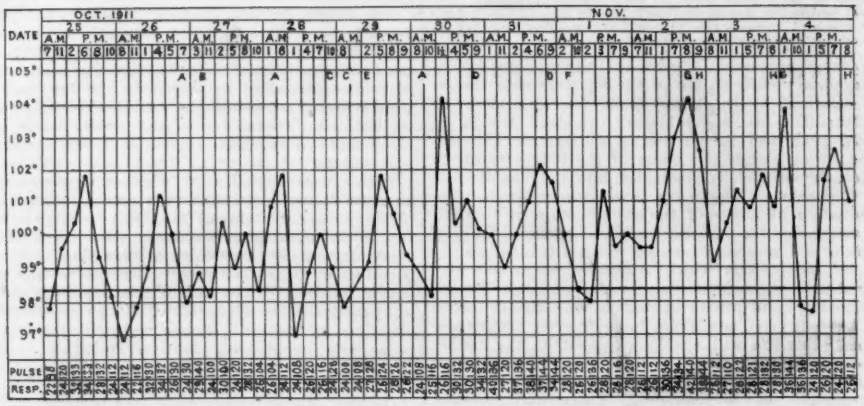
The clinical picture remained strongly suggestive of acute tuberculosis of the pleura with no sputum. Blood culture was again negative, but whenever any blood was expectorated streptococci were invariably present, though possibly they were due to mouth contamination. During the foregoing five weeks we had given Marmorek's antituberculous serum, polyvalent streptococcus serum, and a streptococcus vaccine made from the expectorated blood, without apparent effect. Towards the end of November the disease gradually lighted up again, there being severe "pleurisy" on Nov. 22nd, with temperature 103·6°, and other similar attacks on Dec. 1st, 2nd, and 6th. (Chart 2.)

On Dec. 13th an infarct occurred in the spleen with severe pain for several days, followed by some swelling of that viscus. On Jan. 1st, 1912, Dr. D. W. Carmalt-Jones secured a sample of blood from the left median basilic vein just before a rigor occurred, and by culture obtained a pure growth of streptococcus conglomeratus in 4 tubes out of 6, thus clinching the fact that we were dealing with a streptococcic infection of the heart. It at once became obvious that the sudden onsets of pain, fever, and rigors, followed by physical signs of consolidated patches of lung with superjacent plastic pleurisy, were due to washing-off of septic clots from the right side of the heart and infarction thereof in the branches of the pulmonary arteries. During the previous three months there had been some change in the intensity and quality of the cardiac bruit, and the chief feature was a softening and muffling of the murmur, which at times was almost inaudible. This phenomenon may have been caused by emphysema which was well marked.

An initial dose of 2 million autogenous vaccine prepared by Dr. Carmalt-Jones was injected on Jan. 4th, and this vaccine was repeated in increasing doses and diminishing intervals throughout January, February, March, and April, 1912. In January there was a record period of low temperature three days after the first dose, and a still greater improvement after the third dose given on the 15th, although a fresh pulmonary infarct had occurred on the 10th. (Chart 3.) At this time Mrs. X's weight reached its lowest record of 5 st. 4 lb. 7 oz., and she seemed little more than skin and bone. While gradually pushing the vaccine an amelioration of symptoms set in, with improvement in weight, pulse, and fever. The disease assumed a more chronic type and infarcts became less frequent, although on Jan. 30th the liver was probably infarcted.

During February from 3 to 5 million doses of streptococcic

CHART 1.

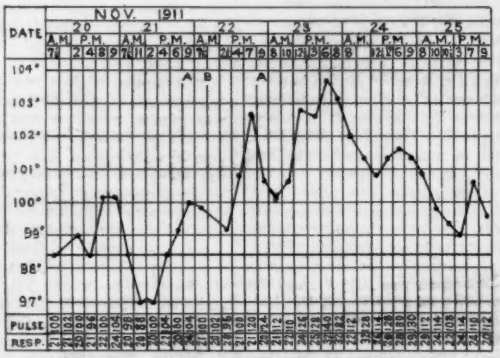


Section of temperature chart during the early stage of the disease, before the occurrence of infarcts. At A, rigor and vomiting. E, Vomiting. F, Labour (products weighed 4¼ lb.). G, Rigor.

vaccine were given about every third day, and this seemed to be an efficient dose. Temperature averaged 101·5° each evening and pulse 120. Weight improved from 5 st. 8½ lb. to 5 st. 11½ lb. On Feb. 22nd the left lower lung was infarcted.

During March the dose of vaccine was increased and reached 10 millions. The disease now seemed to be dying out, and the temperature rarely reached 101°. There were no rigors, and only two small pulmonary infarcts occurred. Mrs. X was so far recovered that she began to get about, and yet it was certain that the infective process still

CHART 2.

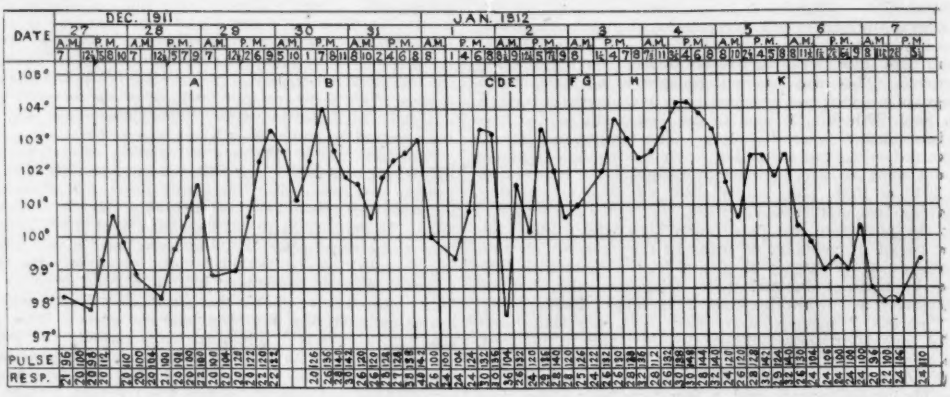


Section of temperature chart showing effect of pulmonary infarction without development of pleurisy. At B a pulmonary infarct occurred.

continued, because a blood culture by Dr. Horder on March 7th revealed streptococci in all of six broth tubes. Menstruation appeared for the first time during the illness, and remained regular each month ever since. Weight on March 31st, 6 st. 3 lb. Blood and a few red corpuscles were found in the urine, followed by a cloud of albumin lasting many weeks, probably caused by a kidney infarct.

During April vaccine was pushed up to 15 millions, and improvement was maintained till the 12th, when fresh disappointment ensued. A pulmonary infarct occurred on the

CHART 3.



Section of temperature chart showing effect of bilateral pulmonary infarction with consequent pleurisy. At B, right pulmonary infarct. E, Rigor. F, Left pulmonary infarct.

13th, another on the 16th, and a rigor and attack of "sciatica" on the 18th. Fearing a return of all the old symptoms, I seized an opportunity to take Mrs. X to London on the 21st for treatment in a nursing home with autogenous serum which Dr. Horder had advised me to have prepared two months previously.

Arrangements had been made with the director of the Wellcome Physiological Research Laboratories (Dr. H. H. Dale) to have a horse specially injected with increasing doses of the killed culture of Mrs. X's streptococcus. Dr. H. L. Südmersen, who was directly in charge of the immunisation of the horse, kindly supplies the following details :—

A culture of the streptococcus was grown first in glucose broth containing 33 per cent. of fresh horse serum, and afterwards in 2 per cent. glucose broth without serum. A three to four days' growth in the latter medium was killed by heating to 62° C. and used for hypodermic injection of the horse, a uniform suspension of the organisms being ensured by shaking with sterile glass beads. A fresh culture was prepared for each injection. In order to accelerate the process, a horse was chosen which had already been immunised to a mixture of various streptococci, and, in successive injections at 8 to 10 day intervals, increasing proportions of the special streptococcus were added to the injection mixture until eventually the horse tolerated the 150 c.c. of killed pure culture of the special streptococcus. Two bleedings were made—one 10 days after the horse had received 50 c.c. of the special streptococcus with 100 c.c. of mixed streptococcal culture; and the other a month later, 8 days after the final injection of 150 c.c. of special streptococcus culture.

The first dose of 25 c.c. of this special serum was injected into the patient on April 25th and repeated each day for five days. It was suspended on the 27th on account of anaphylaxis. Blood cultures by Dr. Horder on April 25th and again on May 13th generated streptococci on each occasion. But very scanty growth appeared in April, and in May one colony only. After the above series of injections the temperature remained almost normal for nine days till May 12th, when a rigor occurred, followed by another on the 16th, and a small infarction of the right lung. A similar sequence of events on May 25th was associated with plugging of the left lung.

Fresh vaccine, prepared from the latest blood culture by Dr. Horder, was now injected in conjunction with autogenous serum given by the mouth—viz., 25 c.c. of serum were imbibed each morning before breakfast, and 10 millions of the new vaccine given about each fifth day. Some days later a small tender nodule appeared in a finger, and that was the last infarct and the end of all serious symptoms. Serum was continued at increasing intervals till the end of July.

After June 1st Mrs. X picked up weight and strength with marvellous rapidity—lungs quickly cleared, heart and pulse strengthened, temperature remained consistently normal, and weight advanced well over 7 st. The cardiac bruit resumed its original loud character. By September the young lady was able to walk 12 miles, dance, play tennis, sail, bathe, and, in fact, do quite a good day's work without more than perfectly legitimate fatigue. On Sept. 27th she ascended Snowdon (3574 feet) by the mountain railway, and after a climb walked down the mountain. On Oct. 19th she fired three shots (all bulls at 100 yards) from a 0·375 Mannlicher rifle and about 30 from a 12-bore gun without damage to herself or anyone else! Temperature, pulse, and health have remained consistently normal, and I think by now (Dec. 20th) there is no fear of relapse. Perhaps there is even some acquired immunity to reinfection by streptococci.

There are many points of interest in this case :—

1. I believe it is the first case of infective endocarditis where the diagnosis was established *up to the hilt* which has recovered.

2. Infection probably occurred on July 6th; the disease developed insidiously, and after sundry warnings the patient became really ill on Sept. 25th, an incubation period of 81 days.

3. The grafting of streptococcal infection on top of a congenital or other lesion of the endocardium has been recently insisted on by Dr. Horder and others, and this case seems to emphasise the danger of allowing micro-organisms a chance to invade the blood-stream where endocarditis exists either in a latent form or by reason of congenital malformations. In this case I believe the heart valves were unaffected, and the ulcerated patch of endothelium was situated in the right ventricle around an ostium guarding an extra or infundibular ventricle leading to the pulmonary artery exactly as in Specimen 580.5 in the Museum of the Royal College of Surgeons of England above referred to. This condition would account for :—

4. The great predominance of infarcts in the lungs.

5. The invariable presence of streptococci in the expectorated blood.

6. The difficulty in culturing cocci from the systemic veins in the first four months of the disease.

7. I think we may infer that there is no leak in the ventricular septum in this case, by reason of the relative paucity of signs in the systemic circulation.

8. The fact of the valves remaining healthy facilitated complete recovery.

Possibly streptococci might have invaded the capillary circulation from the peridental abscess in any event, but I bitterly regretted sanctioning the infiltration of novocaine into an inflamed gum. It is easy to be wise after the event!

9. *Dealing with diagnosis*, at first sight, it appears almost ridiculous that for nearly four months we could not exclude tubercular infection of the pleura, but we were faced with the following considerations which complicated the issue : (*a*) The physical signs in right-sided ulcerative heart lesions may, for a time, be limited to the lesser circulatory system, the minute branches of the pulmonary arteries acting as efficient filters for clots, and to a large extent for micrococci. (Obviously a perforate septum would qualify this state of affairs.) It is often impossible to obtain streptococci by blood culture in the early stages, and infarcts rarely suppurate, presumably owing to some attenuation of the organisms after entering the blood-stream. (*b*) Rigors are extremely rare in tubercular lung disease, except as a result of subsequent infection by cocci. (*c*) Leucocytosis is uncommon in tubercle, but occurs physiologically when pregnancy exists. (*d*) In acute phthisis no sputum may be obtainable and von Pirquet's reaction is usually absent. (*e*) The constant presence of streptococci in blood coughed from the lungs was significant, but not conclusive. Signs of pleurisy with consolidated lung, coupled with fever, dyspnœa, rapid wasting, cough, and a curiously optimistic and energetic temperament, are common to both diseases. The latter was a very remarkable feature of Mrs. X's case, and at no time did she realise the gravity of her illness.

Treatment.—As Dr. Horder has kindly consented to append some notes I will only add a few brief remarks.

Morphia and heroin acted like a charm in relieving pain in the chest and the distressing cough. The former was advanced up to half a grain, and the heroin hydrochloride up to one-third of a grain, with nothing but beneficial effect. When the disease assumed its more chronic phase the patient attained an extraordinary degree of latitude in feeding and habits. Appetite was often voracious, and her emaciated body was able to sustain far greater exertion than seemed either natural or desirable; before the temperature had become normal walking exercise was attended with benefit, and not with the harm which might have been expected.

Autogenous streptococcus vaccine undoubtedly benefited the temperature and seemed to render the complaint more chronic, but after about three and a half months its virtues seemed to wane. I believe healing of the endocardium and final extermination of the micrococci by destruction of their "factory" were brought about by the autogenous serum prepared, upon Dr. Horder's advice, by Dr. Dale and Dr. Südmersen at the Herne Hill Pathological Laboratory; its action when given by the mouth did not seem to be appreciably diminished, and it was impossible to give it subcutaneously for so long.

I venture to predict that combined treatment with both vaccine and serum derived from the patient's cultured organism will eventually become the standard remedy in this previously hopeless disease.

Dr. Bottomley attended this case with me throughout, and I cannot sufficiently thank him. Sir James Goodhart, Dr. Hyla Greves, Dr. Carmalt-Jones, Dr. Horder, Dr. Dale, and others have been unsparing in their skilled help and advice, and my gratitude will be understood when I add that the patient was a near relative of the writer.

Comments by DR. HORDER.

In view of the extreme gravity with which all cases of infective endocarditis are quite rightly regarded, Dr. Hemsted's account of this remarkable instance of recovery from the disease is of the utmost importance.

Dr. Hemsted's theory as to the nature of the congenital heart lesion seems very plausible, and I think his argument sound. Whether he is right or wrong in this, I am quite convinced that he was dealing with a case of progressive infection of the endocardium by a streptococcus, of the type I shall refer to immediately. The three cardinal signs of "ulcerating or malignant endocarditis" were all present: the evidence of endocarditis was complete, the occurrence of infarcts was undoubted, and micro-organisms were repeatedly isolated from the blood-stream. The history of the diagnostic blood cultures in this case was extremely interesting. Whilst the infection remained localised to the pulmonary circulation, cultures of the systemic blood remained sterile. Later, the general circulation was infected and the streptococci were isolated, at first in large numbers and growing vigorously, but as the patient slowly recovered, in smaller and smaller numbers and growing feebly. In the last culture, made on May 13th, only one colony was isolated after four days' incubation, and this colony could not be recovered from subcultures.

As is so frequently the case when faced with the question, Was the treatment responsible for the cure?—the answer is extremely difficult. The practical point, however, remains: the use of a specifically immunised serum combined with an autogenous vaccine offers the best hope of recovery in infective endocarditis. It is true that few patients can command the enormous expenditure of skill and energy bestowed by Dr. Hemsted on this case, but his very success encourages us to hope for similar results by equally persistent endeavours. When it is remembered that in a considerable number of cases of the disease a positive blood culture is available for the purposes of specific therapy fairly early in its course, it becomes a matter of the utmost importance to proceed along the lines followed in the case here recorded. So far as the serum is concerned, the slower the course of the disease the better the chance of obtaining a high degree of immunity in the horse used for the inoculation. And no doubt the same holds good for the beneficial reaction between the vaccine and the patient's tissues. In the only other reported case where a specially prepared serum was used[1] no good effects were obtained. But in this case, occurring in the pre-vaccine era, we had not the advantage of combining the active with the passive method of immunisation. During the past few months "sensitised" vaccines have been on trial in the treatment of streptococcal infections, and it may be that the combined use of serum and vaccine in Dr. Hemsted's case acted in a manner similar to these sensitised vaccines.

The characters of the streptococcus obtained from the blood by Dr. Carmalt-Jones and by myself were definitely those of *streptococcus salivarius*, suggesting, if not actually proving, its origin from the tooth abscess from which the patient suffered. Incidentally, the case provides a warning against the use of local anæsthetics in cases in which periostitis is present. The breaking down of local barriers of defence by the distension of the gum tissue by the injected fluid, together with the opening up of the adjacent lymph spaces, are proceedings evidently to be avoided in such patients. In the presence of old valvular lesions, when it might not unreasonably be urged that the use of a local anæsthetic would avoid risk to the heart by general anæsthesia, it is clear that if a "septic" tooth is the subject of extraction the lesser evil is the general and not the local anæsthetic.

[1] THE LANCET, July 16th, 1904, p. 143.

THE CANCER HOSPITAL, LONDON.—The medical committee of the Cancer Hospital, Fulham-road, London, S.W., is instituting a course of clinical demonstrations on the diagnosis and treatment of cancer. This course, we understand, has been arranged in response to a widespread demand. In the present state of our knowledge any organised attempt to give regular instruction to the medical profession upon the manifestations and treatment of cancer will assuredly be welcome. The demonstrations, which will be given on Wednesday afternoons, at 5 P.M., from Jan. 22nd to March 26th, will be free to medical men and senior students.

RUPTURE OF THE SPLEEN AND LIVER; OPERATION; RECOVERY.

BY WILLMOTT H. EVANS, F.R.C.S. ENG.,
SURGEON TO THE ROYAL FREE HOSPITAL.

A BOY, aged 15 years, was run over by a cart on July 2nd last, one wheel passing over the abdomen. About 20 minutes later he was taken to the Royal Free Hospital in a very collapsed condition. He was pale, but not blanched; his respiration was rapid and his pulse was 120 per minute; he complained of pain in the epigastrium. On examination the abdomen was seen to be moving less freely than normally; there was tenderness on palpation, especially in the upper half of the abdomen, and over the same area the muscles were rigid. On the left side of the abdomen was a bruise, suggesting that the wheel had passed over the body from the left side. On percussion the right side of the abdomen was tympanitic, but the left flank and the left iliac fossa were dull, the dulness extending nearer to the middle line at the lower part than elsewhere. The liver dulness was unaltered. A hypodermic injection of strychnine was given and the boy was removed to the ward, where an injection of half a pint of hot saline solution was given by the rectum. His pulse soon fell to 100 beats a minute. He was very restless and complained of thirst. He vomited two or three times; the first vomit consisted of food tinged with blood, and on the second occasion the vomit contained food only, but it was followed by a few drops of pure blood. A catheter was passed into the bladder, and clear urine was drawn off. I saw him about an hour after the accident, and his condition had changed very little, but the frequency of the pulse had increased, and the dulness was even more marked than before. The general symptoms, the collapse, and the dulness in the left flank after such an injury as the passing of a cart-wheel over the abdomen, suggested that a rupture of the spleen had occurred, and I decided to operate at once.

A vertical incision about three inches long was made over the left rectus near the outer border. The rectus was pushed aside and the posterior layer of the rectus sheath was divided. When the peritoneum was incised a large quantity of blood, estimated at two pints, was found in the peritoneal cavity, and much of this escaped. The spleen was examined and it was found to be torn in several directions nearly completely through, and some of the pieces were almost separated from the main mass. The vessels of the spleen were tied and then divided and the spleen was removed. As much of the blood as could be easily so dealt with was mopped out of the peritoneal cavity, and then a hand was passed into the wound and was carried over to the liver, where two tears were felt. The wound was sewn up in layers with a continuous silk suture. Then a second incision was made on the right side parallel to the margin of the ribs and about three-quarters of an inch from it. It was then seen that there was one tear on the anterior border of the liver and another on the right margin. Each of these was about an inch and a half deep. A third tear was found on the posterior surface of the liver, where the organ is not covered with peritoneum; this tear was deeper than the others.

The patient was very collapsed, and therefore it was thought best to pack the tears in the liver with strips of aseptic gauze. Five strips were used, and the ends were brought out of the middle of the wound, the rest of the incision being sutured. Two pints of hot saline solution were introduced into the median basilic vein, and the boy was returned to bed. It was ordered that half a pint of saline solution should be injected into the rectum every four hours, and that he should have a hypodermic injection of three minims of liquor strychninæ every four hours. By the next morning the patient's colour had improved, his pulse was only 108, and his temperature was 99°F. He complained of some pain. The saline injections were discontinued, and he was put on milk diet.

On July 5th the gauze packing was removed and the wound was partly closed with stitches; only a small gauze drain was left, and this was removed on the following day. A week after the operation the stitches were removed from the wound on the left side, and from the wound on the right side on July 10th. The wound was completely healed by

July 19th. The patient left the hospital on August 5th wearing an abdominal belt, though there was no apparent weakness of the abdominal wall at the site of either incision.

A blood examination on July 14th—that is to say, 12 days after the injury—gave the following figures. Hæmoglobin was 95 per cent.; the red corpuscles numbered 4,920,000 and leucocytes 12,200. The polymorphonuclears were 63 per cent., eosinophiles 1·5 per cent., lymphocytes 26·0 per cent., and hyalines 9·5 per cent.

I think this case worth reporting, as rupture of both the spleen and the liver is by no means common, and still more rarely is the injury seen so early as to enable surgical assistance to be given. In this case the wound of the liver was not very severe and no very large vessel had apparently been wounded. In most wounds of the liver it appears to me to be advisable to pack the wound, unless the condition of the patient is sufficiently good to allow the surgeon time to insert sutures in the liver. The spleen was too severely torn to permit any attempt to suture the tears in it. The rapid appearance of a high percentage of hæmoglobin and of almost the normal number of red corpuscles shows that the function of the spleen was rapidly replaced.

Harley-street, W.

GLYCOSURIA IN TUBERCULOUS MENINGITIS.

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VERY little has been written about the occurrence of glycosuria in cases of tuberculous meningitis, although several authors have mentioned that it is sometimes met with. The earliest reference which we have found is in a paper by Loeb,[1] published in 1884; and Dr. G. F. Still,[2] Dr. W. Aldren Turner, Dr. T. Grainger Stewart,[3] and Sir Thomas Barlow[4] have also alluded to the symptom, of whom Sir Thomas Barlow writes that "rarely a trace of sugar may be found in a late stage of the disease." Our investigations, which have been carried out at the Hospital for Sick Children, Great Ormond-street, during the past few years, show that the excretion of sugar is a much more common event than such previous statements would suggest. Our examinations have been carried out upon 41 cases of tuberculous meningitis which came under observation in the wards of the hospital mentioned. In all but three of the cases the diagnosis of tuberculous meningitis was confirmed by post-mortem examination. The remaining three cases presented the characteristic symptoms of the disease, and in each of them the tubercle bacillus was found in the cerebro-spinal fluid. In 15 of the 41 cases (36·6 per cent.) glucose was found in the urine at some period in such quantity that when equal volumes of urine and Fehling's solution were mixed when hot, but without reboiling, conspicuous reduction occurred. In the earlier cases examined an osazone, with the appearance and melting-point of glucosazone, was obtained, the urine was found to be dextro-rotatory, and estimations of the glucose yielded figures between 0·25 and 1 per cent. In 11 of the remaining 26 cases partial reduction of the hot Fehling's solution was obtained without reboiling, and this at the same period of the disease at which pronounced glycosuria appeared in the other 15 cases. In the remaining 15 cases of the series no reduction of Fehling's solution was obtained at any time.

Period of the disease at which glycosuria occurs.—In each case daily or more frequent examinations were made, from the time when the diagnosis of tuberculous meningitis was made until the death of the patient, and as regards the period of onset of glycosuria the results were as follows. In two cases sugar was first found in the urine 24 hours before death; in ten cases 48 hours before death; in one case 72 hours; and in one case 96 hours. One patient developed glycosuria 9 days before death, and this was, unfortunately, the only case of the glycosuric series in which no necropsy was allowed. Once developed the glycosuria persisted for the remaining days of the patients' lives, and it will be seen that in the great majority of instances the sugar only appeared in the two last days of life.

Comparison of glycosuric and non-glycosuric cases.—In their clinical features the glycosuric cases presented no striking differences from those in which no sugar appeared in the urine, nor was there any obvious influence of sex or age in this respect.

Table of Glycosuric and Non-glycosuric Cases at Different Ages.

Ages.	Cases with pronounced glycosuria.	Cases without glycosuria.	Total.
Under 1 year	3	5	8
Between 1 and 2 years	2	3	5
„ 2 „ 3 „	2	5	7
„ 3 „ 4 „	3	4	7
„ 4 „ 5 „	2	3	5
„ 5 „ 6 „	1	2	3
„ 6 „ 7 „	0	1	1
„ 7 „ 8 „	1	0	1
„ 8 „ 9 „	0	1	1
„ 9 „ 10 „	0	1	1
„ 10 „ 11 „	1	1	2
	15	26	41

As far as can be judged from the table the liability to glycosuria is not greater at one age than at another.

Sex.—Of the 41 patients 19 were boys and 22 girls. Of those who passed sugar 6 were boys and 9 were girls, and of the non-glycosuric patients 13 were of each sex.

Incidence of optic neuritis.—Of 12 patients with glycosuria, 7 had optic neuritis and 5 had none; whereas among 13 without glycosuria the proportion was 8 with to 5 without.

Other clinical features.—Certain other clinical features, such as the duration of the illness, the degree of fever, and depth of unconsciousness, appeared to be equally without influence upon the development of glycosuria. The recent work of Edie, B. Moore, and Roaf,[5] upon the influence of asphyxia in exciting glycosuria, through accumulation of carbon dioxide in the tissues, suggested a possible explanation of the phenomenon under discussion, seeing that in the later stages of tuberculous meningitis there is undoubtedly some degree of asphyxia. However, this was not more pronounced in the cases with glycosuria than in the others, nor is sugar found in the urine in various other diseases in which the functions of the respiratory organs are impaired to an equal extent.

Pathological aspects of the cases studied.—The organs which play recognised parts in the causation of glycosuria were examined with special care in the cases of our series. In no instance did naked-eye or microscopical examination of the pancreas show any morbid changes in that gland to which the occurrence of the glycosuria could be ascribed. The same may be said of the thyroid and adrenal glands. In some cases miliary tubercles were present in them, but this was equally true of cases in which no sugar was excreted and of the glycosuric cases. The characters and distribution of the tuberculous lesions elsewhere than in the meninges differed in different cases, but as far as could be judged the differences of distribution bore no obvious relationship to the presence or absence of glycosuria. In a number of fatal cases of tuberculosis without meningitis, in which the urine was examined during the last days of life, no sugar was ever found.

It seems highly probable that the presence of the meningitis is the factor which determines the occurrence of glycosuria. The symptom has been met with in a few cases of meningococcal meningitis, by Mannkopf,[6] Emil Adler,[7] and others, but we have never seen it in the post-basal meningitis of infants. It would rather appear that among the varieties of meningitis the tuberculous is specially apt to be associated with it.

One is tempted to connect this form of glycosuria with the puncture glycosuria of Claude Bernard, and to look upon it as due to emptying of the glycogen reservoirs at the end of life, but its onset usually precedes the death of the patient by so short a time that it cannot be determined whether or not it is of a transient nature. A case calculated to throw important light upon this question was met with near the commencement of our investigation, but unfortunately was only imperfectly observed. The urine of the child in question reduced Fehling's solution readily when the hot urine and reagent were mixed. Two days later the reducing power gradually diminished, and the last specimen passed gave a pea-green reduction, yielded no osazone, and had a slight lævorotatory power. The lack of a more thorough examination in the earlier stage leaves the question of the nature of the reducing substance present an open one.

The condition of the fourth ventricle was carefully investigated in the cases of our series both by the naked eye and in microscopic sections, but no structural lesion could be detected to which the glycosuria could be attributed; nor did the appearances differ in the glycosuric and non-glycosuric cases respectively.

Loeb suggested that the excretion of sugar in these cases might be due to implication of the pituitary gland, which gland has undoubtedly a conspicuous influence upon carbohydrate metabolism, as Borchardt,[8] Cushing, and others have shown. Such an explanation appeared to gain in probability from the far greater frequency of glycosuria in tuberculous meningitis, in which the exudate is chiefly in the anterior basal region, than in the posterior basal meningococcal variety. Indeed, in not a few cases there was a conspicuous exudation in the neighbourhood of the pituitary gland. But whilst in some of the cases in which that region was most conspicuously affected no sugar appeared in the urine, in others in which there was little exudate around the pituitary glycosuria was present. Moreover, microscopical sections of the pituitary glands of patients who had exhibited glycosuria failed to show any abnormality.

The intracranial pressure, which is conspicuously raised in tuberculous menigitis, was not specially estimated, but, as far as could be judged during lumbar puncture, was as high in cases without as in cases with glycosuria. Moreover, there came under observation during the same period cases of pneumococcal, staphylococcal, streptococcal, a few cases of influenzal, and many of meningococcal meningitis. In all of these conditions there was increase of intracranial pressure, as great as, and often greater than, that found in the tuberculous cases, but in no instance did glycosuria occur.

Lastly, in 38 cases of tuberculous meningitis, the distribution of the exudate, the degree of hydrocephalus, the extent and degree of matting of the structures, the thrombosis of vessels, and the softening of the cerebral tissues were investigated, and in respect of none of these did the glycosuric cases differ obviously from the others.

To sum up, it is evident that glycosuria is by no means an uncommon symptom in tuberculous meningitis, for it occurs in more than one-third of all cases of that disease; that sugar is most apt to appear in the urine during the last days of the patient's life; and that this variety of glycosuria probably has its origin in the cerebral lesion and belongs to the nervous group, but to what special lesion or other factor its occurrence is due we have not been able to determine.

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AT an extraordinary general meeting of the Postal Medical Officers' Association, the president reported an interview which he had had with the secretary of the Post Office. It was then intimated that unestablished postal employees who are insured persons will be free to choose their medical attendant, and the postal medical officer will be under no obligation to attend them.

REMOVAL THROUGH THE MOUTH OF A TOOTH-PLATE,

IMPACTED IN THE ŒSOPHAGUS FOR TWO AND A HALF YEARS.

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THE patient, a young man aged 22, one night in May, 1908, went to bed wearing in his mouth a vulcanite tooth-plate, which he knew was cracked down the centre. (Fig. 1.) He was awakened from sleep by a severe

FIG. 1.

Left half of vulcanite denture.

choking sensation, a fulness in the throat, and a difficulty in swallowing. Finding that half his tooth-plate had disappeared from his mouth he ate some bread-and-butter and took a dose of salts. By rubbing his throat with his hand he felt easier. At each meal the next day he had severe pain when the food passed a certain spot behind his breast-bone, and he was unable to laugh or sneeze on account of the pain, which continued for eight weeks. During this time he suffered much from indigestion; when eating, his mouth would fill with frothy spittle, and every mouthful of food would cause great pain as it passed a certain spot behind his breast-bone. Frequently he felt as if he would choke.

Two months later—i.e., July, 1908—the patient was admitted to a large metropolitan hospital, and reports that on two occasions he was examined by X rays, and was once under an anæsthetic for one and a half hours, but nothing was found. He was told that there was nothing wrong with him, and he was advised to eat solid foods. His symptoms continued, and he subsisted on slops. A year later, in May, 1909, after a cycle ride, he spat up some yellowish substance, was easier, and could swallow better for some time.

In July, 1909, the patient attended a special throat hospital, where he was examined by the direct method (œsophagoscopy). Nothing was found, and he was treated with a bromide mixture. At this period he had great difficulty in swallowing, and choking fits were frequent. Sometimes he had to make as many as eight efforts before getting any food into his stomach; then, perhaps, he might be able to finish the meal in comparative ease. At one meal he might swallow easily, and at the next he might have considerable difficulty. He referred the pain to the centre and right side of his breast-bone.

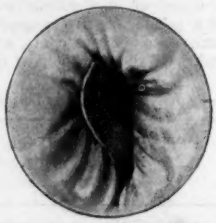
In August, 1909, feeling that he was gradually becoming worse, the patient attended the throat department of another large London hospital on three occasions. He reports that his right bronchus was examined by the direct method (bronchoscopy), and nothing was found. A bougie was also passed down into the stomach. The patient begged the surgeon to examine the œsophagus with the direct method, but was told that, in view of the passage of the bougie, it was unnecessary to do so. He was advised to join the army. The patient returned home much discouraged.

The patient again attended one of the large general hospitals in London, and again complained of pain on the right side of his chest. He reports that the doctor pointed out to the students that his trouble was evidently functional dysphagia and not due to any œsophageal lesion, as the œsophagus in its course tended to the left side—i.e., the one opposite to the side complained of. A report was then sent to his doctor to say that he had a hysterical throat, such as females have, and that he could swallow easily if he tried.

After some electrical treatment, and many vain efforts to get down solid food the patient determined to subsist entirely on liquids. To facilitate this he acquired the habit of daily passing two œsophageal bougies into his stomach, in order to, as he thought, dilate the stricture. The benefit he derived from this manipulation was evidently due to the fact that the bougie tilted the rim of the denture to one side and allowed the nourishment to pass along its concavity.

In June, 1910, the patient was sent to the London Throat Hospital by Dr. S. Rattray, of Swindon, and with the direct method Dr. Irwin Moore discovered the tooth-plate impacted in the œsophagus. (Fig. 2.) Dr. Moore kindly transferred the

FIG. 2.



Vulcanite denture impacted in the œsophagus. The illustration shows the margin of the tooth-plate, as seen by the œsophagoscope. The concavity of the plate allowed of bougies and endoscopic tubes being passed alongside it.

patient to my care, and I saw him in my clinic in King's College Hospital on Oct. 7th, 1910. Under cocaine, with a little careful searching, the red edge of the tooth-plate was easily seen in the œsophagus at a distance of 10 inches from the teeth. An X ray examination by Mr. A. D.

FIG. 3.

Radiogram showing denture opposite the fourth and fifth dorsal vertebræ, and at a level with the cartilage of the second rib in front. The shadow of the tooth-plate has been slightly intensified in order to be visible in reproduction.

Reid did not reveal much, but a developed photograph showed the faint outline of the tooth-plate opposite the fourth and fifth dorsal vertebræ, and on a level with the second rib cartilage in front. (Fig. 3.) This was estimated to be at the level of the bifurcation of the trachea. On Oct. 11th chloroform was administered, and the tooth-plate was seized with a pair of forceps specially selected by being tried on the other half of the plate, which the patient had wisely preserved. It was found impossible to withdraw the tooth-plate through the Brünings tube, so the tooth-plate, forceps, and tube were all removed *en bloc*.

The patient left the hospital the next day, eating solid food. When examined a week later there was a slight fibrous contraction at the situation of the impaction. He continued to use the bougie until I saw him again in March, 1911, when I advised him to discontinue it. At that date—i.e., five months after the removal of the foreign body—he reported that he had had no difficulty with solid food since leaving the hospital, and had gained 11 lb. in weight.[1] When written to at the beginning of December, 1911, he replied as follows: "I experience no difficulty in swallowing, neither have I since the plate was removed. At times I am reminded of the sharp pains which I experienced if I attempted to laugh, by an itching under the right nipple. The place was equally painful if gulping up wind, of which I suffered so much after swallowing it. In swallowing I can detect nothing unless I drink cold water, which causes a twitch at the place where the plate was."

This case is interesting chiefly for two reasons: 1. It shows how little harm a solid, inorganic foreign body may produce in the gullet, particularly if blind attempts to fish it up are not made. 2. It shows how the diagnosis may be overlooked. Both the œsophageal bougie and the Killian tube had evidently glided along the concavity of the tooth-plate, and this being made of red vulcanite its colour was not so readily distinguished from that of the mucous membrane. Skilled observers with the X rays also failed to detect it. A reference to the plate (Fig. 3) will show that, though faint, the vulcanite throws a distinct shadow. If the patient was only screened in the other hospitals where he had sought relief, the case demonstrates the advantage of taking a photograph. In any case, it shows that care must be used in "reading" X ray photographs. This case teaches us that even when the radiogram is said to be negative, or the substance happens to be one which throws little or no shadow, the œsophagoscope should be used slowly and carefully, inspecting every portion of the gullet walls both during the descent and withdrawal of the instrument.

Two and a half years is a good time for a foreign body to remain in the œsophagus. This record has seldom been surpassed. Guisez records a case in which he extracted a foreign body after it had sojourned in the gullet for four years, but in that instance the substance was a smooth 10-centimes coin and not an irregular and angular tooth-plate.[2]

Wimpole-street, W.

SOME OBSERVATIONS UPON THE TREATMENT OF PULMONARY TUBERCULOSIS WITH SMALL DOSES OF TUBERCULIN,

THE DOSE BEING REGULATED BY FREQUENT ESTIMATIONS OF THE OPSONIC INDEX.

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THE following observations upon the treatment of pulmonary tuberculosis with small doses of tuberculin regulated by estimations of the opsonic index are perhaps of sufficient interest to justify their publication. The fact that this work was carried out as far back as the year 1907 is an advantage, in that we are now in a better position to determine whether or not the treatment was of any value than we were at the time the observations were made.

It will be remembered that in 1907 the use of tuberculin was being revived in this country under the influence of the work of Wright and his colleagues, and that the very large majority of physicians who prescribed tuberculin gave it in

[1] The patient and tooth plate were shown before the Medical Society of London on March 27th, 1911. (See THE LANCET, April 8th, 1911, p. 940.)

[2] Maladies de l'Œsophage, Paris, 1911, p. 270.

accordance with Wright's recommendations. At King Edward VII. Sanatorium Wright's method of tuberculin administration was closely followed. The method is best described in Wright's own words:—

"I regard it as a matter of great moment, especially in connexion with the immunisation against tubercle, to employ in every case the smallest dose which will elicit a satisfactory response, to repeat the dose only when the effect of the preceding inoculation is passing off, and to increase the dose only when it becomes clear that the dose previously employed is ceasing to evoke a sufficient immunising response. Acting in accordance with this principle I now begin with a quantum of tuberculin corresponding to not more than 1/1000th milligramme of the tubercle powder, and never advance to doses larger than a 1/600th milligramme."[1]

The dosage of tuberculin given to the patients in King Edward VII. Sanatorium in 1907 was never outside these limits of 1/1000th to 1/600th milligramme, T.R. being the preparation used in every instance. The opsonic indices shown by the rise in the opsonic index. The repeated immunising responses were not, however, associated with any appreciable alteration in the clinical condition, in respect to such essential factors as reduction of temperature, diminution in the amount of sputum, disappearance of tubercle bacilli, &c. We were indeed unable to detect any difference whatever in the progress of the tuberculin-treated patients as compared with the progress of similar types of patients who, living under precisely similar conditions, were not having tuberculin. It is of some interest to note that in no case did the weekly repetition of the small doses of tuberculin give rise to any hypersensitiveness.

2. *Ultimate results.*—Considering only the 17 cases whose treatment extended over periods ranging from a minimum of 7 weeks to a maximum of 25 weeks, the results are as follows. Of 12 cases of moderately advanced disease (Group II.), after a period of five years since discharge from the sanatorium, 4, or 33 per cent., are well, and the remainder are dead. Of those who have died, 2 lived for over 4 years, 3 lived for over 3 years, 2 lived for over 1 year, and 1 lived three months only after discharge. Two of the 4 patients who are well lost their bacilli before they left the sanatorium. The 5 cases of very advanced disease all died within 12 months of their discharge.

Table giving Particulars of Tuberculin Treatment in Small Doses Controlled by Estimation of the Opsonic Index.

No.	Group.	Number of weeks of tuberculin treatment.	Number of doses.	Condition on discharge.	After-history.	Remarks.
1	II.	11	10	Unaltered.	Died 12 months after discharge.	T.B. present all through treatment.
2	II.	25	19	Arrested.	Well and at work in 1912.	T.B. present on admission, absent on discharge. During treatment had acute pleurisy with some effusion, which rapidly cleared up.
3	II.	10	8	Much improved.	Died 2 years after discharge.	T.B. present throughout treatment.
4	II.	23	23	Improved.	Very fair health in 1912.	T.B. present on admission, absent on discharge. Febrile throughout most of stay.
5	II.	7	6	,,	Died 18 months after discharge.	T.B. present on admission and on discharge.
6	II.	24	22	Much improved.	In good health in 1912.	,, ,,
7	II.	11	10	Worse.	Died 1 year after discharge.	,, ,,
8	II.	11	6	Slightly worse.	Died 4½ years after discharge.	T.B. present on admission and on discharge. Treatment stopped by moderately severe attack of hæmoptysis which was followed by slight extension of the disease.
9	II.	9	8	Stationary.	Well and at work in 1912.	T.B. present on admission and on discharge. Febrile throughout.
10	II.	7	7	Worse.	Died 3 weeks after discharge.	T.B. present on admission and on discharge. Disease rapidly progressed throughout period of treatment.
11	II.	12	12	Much improved.	Died 2 years after discharge.	T.B. present on admission and on discharge.
12	II.	13	11	,,	Died 4 years after discharge.	,, ,,
13	III.	10	8	Stationary.	Died 9 months after discharge.	,, ,,
14	III.	11	10	Unchanged.	Died 11 months after discharge.	T.B. present on admission and on discharge. Febrile throughout.
15	III.	21	14	Died in sanatorium.	—	T.B. present.
16	III.	21	19	Unaltered.	Died 12 months after discharge.	T.B. present on admission and on discharge. Made material improvement for 17 weeks, then had severe hæmoptysis and relapsed. The relapse was preceded by a marked fall in index.
17	III.	17	16	Some improvement.	Died 9 months after discharge.	T.B. present all through treatment.

These results, as a matter of fact, compare somewhat unfavourably with the ultimate results of comparable cases treated in the sanatorium during the same period without tuberculin. The numbers treated with tuberculin, however, are small, so no great importance can be attached to such a statistical comparison.

The conclusion we seem justified in arriving at is that the tuberculin, from a clinical point of view, was a negligible factor, and in no wise influenced either the immediate or the ultimate prospects of the patients to whom it was given.

Some details with regard to the treatment of the 17 cases are given in the accompanying table.

Midhurst, Sussex.

were estimated by Dr. Elder, at that time pathologist to the sanatorium.

Thirty cases in all were treated, over periods varying from a minimum of 6 weeks to a maximum of 25 weeks. Thirteen of these cases had less than 6 inoculations and need not be considered further. The remaining 17 cases were patients with well-marked lung disease. Classified according to the Turban-Gerhart method, 12 would be described as Group II. and 5 as Group III. cases. No case of early and limited disease (Group I.) was included. The cases then were for the most part of an unfavourable type clinically.

Results of Treatment.

1. *Immediate result.*—In the case of all the patients thus treated the injection of the small dose of tuberculin nearly invariably resulted in a satisfactory immunising response, as

[1] Transactions of the Royal Medical and Chirurgical Society, vol. lxxxix.

A PRELIMINARY INQUIRY AS TO THE VALUE OF THE COMPLEMENT FIXATION TEST IN TUBERCULOSIS.

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IN this preliminary communication we do not intend to refer to the numerous papers which have already appeared on this subject, but merely to give the results of our investigations concisely and as briefly as possible. Our opportunities have enabled us to investigate tuberculosis from many aspects owing to the large amount of material at our disposal. We can refer not only to cases of pulmonary tuberculosis in all its stages, but also to apparently healthy subjects who have been in contact with this disease for a considerable time. Comparisons have been made of the degree of reaction obtained in cases of pulmonary tuberculosis with that in lupus of many years' standing and in chronic tuberculosis of bone and connective tissues. Opportunities for the examination of the blood of tuberculous subjects who have been regarded as "arrested" or free from any symptoms have occurred, and it would seem that the most valuable inferences may be obtained by blood investigations on such lines.

The blood of a certain number of apparently healthy medical students and others has been studied and also blood obtained from subjects in whom there has been no evidence of tuberculosis on post-mortem examination. Some of these cases have been classed as doubtful, as blood obtained at the necropsy has not only given a positive result, but a fully active reaction has been obtained by titration methods. There was, however, no evidence of tuberculosis at the necropsy on these cases, and in some instances there was absence of evidence of tuberculosis on microscopical examination of the morbid viscera.

Gruber[1] tested the blood obtained from the post-mortem room for evidence of syphilis on 300 cases. He considers that reliable results are obtained provided certain precautions are taken—viz., that the body should be removed to the mortuary immediately after death, the blood should be examined within 12 hours, and only complete inhibition of hæmolysis should be regarded as satisfactory.

Wolff[2] considers that blood serum obtained after death gives too high a percentage of positive evidence of syphilis, and he recommends treating the serum with barium sulphate to remove lipoids which have appeared in the serum after death, and also determining by quantitative methods to what extent the complement is absorbed. The titration methods employed in our cases would seem to contra-indicate the suggestion raised by Wolff, but, on the other hand, we cannot neglect this fact as an explanation of the positive results obtained in a certain number of the cases which we have investigated, and in which there was no evidence of tuberculosis as far as the necropsies showed.

Methods Employed.

The technique employed in these reactions will be referred to quite briefly.

In every instance one volume each of the serum (or diluted serum), antigen (or diluted antigen), and complement were mixed together, and subsequently a like volume both of red corpuscles and hæmolytic immune body were added.

The mixture of serum, antigen, and complement was incubated at body temperature for one hour, and then the hæmolytic system was added. Positive results included those instances in which no hæmolysis occurred or what would be regarded as mere tinging. In a few instances the mixture was allowed to react for three hours at 37° C., but the results were not so satisfactory as in the case of the shorter period. In a certain number of experiments a duplicate series was arranged in ice, but here the action was allowed to continue for some hours.

The sera to be tested were heated at 60° C. for 15 minutes, or at a lower temperature for a suitable time. A 5 per cent. suspension in normal saline of thoroughly washed sheep's red cells, together with a highly potent hæmolytic immune body derived from a rabbit which had been immunised with sheep's red cells, was employed throughout these experiments in suitable dilution. Fresh guinea-pig complement diluted 1 in 10 with normal saline was employed on every occasion.

Antigens.

A large number of antigens have been tried in these investigations, and it may be as well to refer to the methods employed in their preparation and to their comparative merits.

1. *Sputum.*—Tuberculous sputum containing masses of tubercle bacilli was sterilised by heat and then dried in vacuo over sulphuric acid. The residue was weighed and then made into a thick paste with sterile saline, so that it could be readily ground in an agate mortar. Alternate freezing and thawing over solid CO_2 was employed in addition to aid in the pulverisation of the sputum. Sterile saline was finally added, so that 0·16 grm. of sputum was emulsified in 10 c.c. sterile normal saline; phenol was added, so that the total mixture contained 0·25 per cent. This antigen, however, was not found to be of any great value, probably owing to the fact that so much saline was required to make a satisfactory emulsion.

2. *Tissue extracts.*—The spleen and lymph glands of guinea-pigs rendered tuberculous by previous inoculation with human tuberculous sputum were finely minced and then dried in vacuo over sulphuric acid. The dried powder was weighed and then ground in an agate mortar with sterile saline or absolute alcohol. Further saline or alcohol was added until there was 1 grm. of powder to 5 c.c. of fluid. The mixtures were then heated for one hour at 60° C. The saline emulsion contained 0·25 per cent. phenol in addition. Both extracts were diluted with saline when employed as an antigen, but they were found to be unsatisfactory unless tuberculin was added, and even then no special merit could be attributed to them.

3. *Old tuberculin.*—Dilutions in saline of 1 in 5, 1 in 10, 1 in 20, and 1 in 100 were employed, but with much less satisfactory results than with tuberculin T.R.

4. *Tuberculin T.R.*—Dilutions of 1 in 5, 1 in 10, 1 in 100, and 1 in 200 in normal saline were made use of in these experiments. This antigen was found to be of considerable value and was certainly next in order of merit to the emulsion of tubercle bacilli.

5. *Tuberculin A.F.*—This albumose-free tuberculin was suitably diluted with saline and standardised as an antigen, but was not especially efficacious.

6. *Tubercle bacilli* cultivated by us on Dorset's egg medium from tuberculous sputum were killed by heat, ground in an agate mortar, emulsified in saline and used in varying dilutions. This antigen was employed on a certain number of occasions with satisfactory results, but still greater success is expected in our future work owing to the much more abundant growths of tubercle bacilli at our disposal, cultivated from the cases which we have been investigating.

7. *Stock (dead) tubercle bacilli.*—This antigen was found to be the most satisfactory of any employed. It was prepared by weighing out 200 mgm. of the dead organisms, grinding the powder in a little saline in an agate mortar, and assisting this process by alternate freezing and thawing over solid CO_2. Carbolised (0·25 per cent.) saline was then added, so that 200 mgm. of the bacilli were suspended in 10 c.c. of sterile normal saline. A dilution of 1 in 10 of this was found to act as a satisfactory stock antigen, and further dilutions amounting to 1 in 100 and 1 in 200 were employed for standardising purposes.

This antigen was employed throughout the whole of the work and was always prepared in the same manner, so that it can be regarded as a constant factor in these investigations.

Hammer,[3] who has conducted numerous investigations on

[1] Gruber, G.: Ueber Untersuchungen mittels der Wassermannschen Reaktion an der Leiche, Münchener Medizinische Wochenschrift, 1912.
[2] L. K. Wolff: Ueber Untersuchungen mittels der Wassermannschen Reaktion an der Leiche, Münchener Medizinische Wochenschrift, 1912.
[3] C. Hammer: Die Komplementbindungsreaktion bei Tuberkulose, Münchener Medizinische Wochenschrift, 1912.

the complement-fixation reaction in tuberculosis, considers that the most reliable antigen is obtained by mixing tuberculin and tuberculous tissue extracts. He employed both alcoholic and acetone extractions for these investigations in all classes of cases of tuberculosis.

Cases of Pulmonary Tuberculosis.

The complement-fixation reaction has been investigated in 131 cases of pulmonary tuberculosis. While the majority of these cases were in an afebrile condition and undergoing sanatorium treatment, the total number includes cases of all degrees of severity.

Tubercle bacilli were found in the sputum by the ordinary routine methods of examination in most of our cases, while in a very few instances the diagnosis of pulmonary tuberculosis was not definitely decided. In several cases the serum was examined on more than one occasion and reference will be made to some of these cases elsewhere in this paper. For convenience the cases have been roughly divided into three groups: A, those undergoing treatment other than by tuberculin injections; B, those having injections of tuberculin or dead tubercle bacilli; C, "arrested" cases living an ordinary life under healthy conditions. A few of the individuals in class A had received an injection or injections of tuberculin months or years previously for diagnostic purposes.

I.—*The Presence of the Reaction.*

Class A.—In 102 cases in this class the reaction was present in 86 and absent in 16. The 16 cases in which the reaction was absent are briefly discussed, as they appear to be of some interest. In two of these bacilli had been found in the sputum some months previously, but while under observation there were no symptoms or signs of pulmonary disease. Two cases were examples of fibroid phthisis with tubercle bacilli in the sputum, but with no constitutional symptoms. One was a case of old tuberculous pleurisy with no signs of pulmonary involvement. In two instances, although tubercle bacilli had been present in the sputa a few weeks previously, at the time the sera were tested the patients were free from symptoms and the cutaneous tuberculin reaction was negative. In one the diagnosis of tuberculosis rested solely on a febrile reaction after an injection of old tuberculin some months previously. In the eight remaining cases definite physical signs and symptoms were present, and in five of these the presence of tubercle bacilli was demonstrated, while in one instance the patient was moribund from acute tuberculosis.

Class B.—In every case where the patient was under treatment with tuberculin or bacillary emulsion the reaction was positive.

Class C.—This class comprises 19 cases in which the disease had been quiescent for periods varying from a few months to seven years. In 14 the reaction was positive; in five it was negative. In one of the five the original diagnosis depended solely on a reaction to old tuberculin; in the four remaining cases tubercle bacilli had been present in the sputum at one time or another. Several instances in this class which gave a positive reaction had been free from any symptoms of disease for several years and were apparently in excellent health.

II.—*The Intensity of the Reaction.*

An attempt was made to estimate the strength of the immune sera which gave positive reactions. The advantages of this method of examination of the blood in cases of tuberculosis would appear to depend largely upon the estimation of the intensity of the reaction. It has been pointed out by Dean[4] in his series of valuable papers on the subject of complement-fixation that there is a definite favourable quantitative relationship between antigen and antibody, and that excess of either constituent is unfavourable to the fixation of complement.

The sera were diluted with normal saline in the following proportions: (*a*) 1 volume of serum with 1 volume of saline; (*b*) 1 volume of serum with 9 volumes of saline. The interaction of these three strengths of serum—i.e., full strength, 1 in 2 and 1 in 10—with standard antigen—i.e., the emulsion of bacilli as described above—and with dilutions of it to the extent of 1 in 10 and 1 in 20, was employed to classify the sera into three groups. The three strengths of bacillary antigen which were used in our experiments were 1 in 10, 1 in 100, and 1 in 200.

Group I. "Weak" reaction.—Here fixation of complement occurred only with full-strength serum and full-strength antigen, but no fixation occurred with the controls.

Group II. "Strong" reaction.—Here fixation occurred when diluted serum interacted with strong antigen and when diluted serum interacted with dilutions of antigen.

Group III. "Medium" reaction.—This includes the cases which gave a positive reaction intermediate between the two previous ones.

Of the 109 cases of pulmonary tuberculosis in which a positive reaction was obtained, 56 gave a "strong" reaction, 28 a "medium," and 25 a "weak" reaction.

The "strength" of the reaction did not appear to depend in any way on the extent or chronicity of the disease, nor on the general condition of the patient at the time of examination. Some cases in an extremely toxic condition gave only a slight reaction, while one which was almost moribund did not react. In other cases with similar clinical manifestations the reaction was extremely powerful; on the other hand, one of the most marked reactions in the series was given by a chronic fibroid case in which the general health of the patient appeared to be remarkably good; in the majority of the more chronic cases, however, the reaction was weak.

Of the various antigens employed, that consisting of an emulsion of tubercle bacilli gave by far the largest number of positive results, as already mentioned. It is our belief that up to the present we have not obtained an antigen as efficient as is desirable for investigations of this nature. We are now giving special attention to this question. In many cases sera giving a strong reaction with this antigen gave only a weak or a negative result with an antigen made from one of the various tuberculins; but some marked exceptions occurred, as certain cases of tuberculosis which had never received injections of tuberculin gave a stronger reaction with an antigen of new tuberculin than with the bacillary emulsion.

Ten cases which had recently received a considerable number of therapeutic injections of one or other of the various tuberculins were examined. As stated above, all these gave a positive reaction; in the majority the reaction was "strong," and the strength appeared to vary directly with the amount of tuberculin which had been administered. This titration method may prove of value in controlling the administration of tuberculin. As far as could be ascertained from so small a number of observations, the degree of reaction of the serum and the clinical condition of the patient appeared to bear no relationship to one another. In these cases the sera reacted most powerfully in the presence of an antigen made from bacillary emulsion, quite irrespective of the nature of the tuberculin which the patient was receiving; but in one instance, that of a man having injections of T.R., the serum reacted more powerfully when T.R. was employed as the antigen than when the bacillary emulsion was used.

In certain cases of pulmonary tuberculosis the serum has been repeatedly examined at various intervals, but these experiments are still being continued and are at present far from being complete. We have as yet been unable to determine any definite connexion between changes in the strength of the reaction and the absence or presence of fever or other changes in the patient's condition, but a gradual weakening of the reaction, coincident with improvement in the condition of the patient, has been observed on more than one occasion.

Tuberculous Pleurisy with Effusion.

Four cases of primary pleural effusion with cytological evidence of a tuberculous origin were examined. In each instance the reaction was tried on the serum from the effusion and on the blood serum. In all four instances the serum from the effusion gave a positive reaction, but in two the blood serum was negative, while in the other two the blood serum, although positive, was less powerful when titrated than the effusion.

Contacts.

We have examined the sera from nine healthy individuals who have been engaged for some time in the nursing of tuberculous patients or on the administrative staff of a large sanatorium. They have been in daily association with the

[4] H. R. Dean: Studies in Complement-Fixation with Strains of Typhoid, Paratyphoid, and Allied Organisms, Proceedings of the Royal Society of Medicine, April, 1911.

patients and with tuberculous employees. In every case the reaction was negative.

Cases of Tuberculosis other than Pulmonary.

The reaction of a number of cases of tuberculosis affecting other tissues was investigated. The list includes cases of lupus, bone disease, and other forms of tuberculous infection, principally "surgical" cases. In 57 per cent. the reaction was positive and in 43 per cent. negative, but no example has been met with so far in this series of a serum so markedly powerful as was found in cases of pulmonary tuberculosis.

Our results have incited us to undertake a much more elaborate investigation of this subject, but not especially from the point of view of the diagnosis of tuberculosis. We consider that much may be learnt from a comparison of results obtained from time to time in individual cases, and intend to investigate the effects of treatment upon the reaction and especially in how far clinical phenomena and the strength of immune sera, as tested by tritation methods, are intimately related.

RADICAL OPERATION FOR MALIGNANT DISEASE OF THE TESTIS.[1]

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THE whole tendency of the modern surgery of malignant growths, especially carcinomata, has been towards more and more radical operation. The aim of the surgeon nowadays in dealing with a cancer is not only to remove widely the growth, but to remove in one piece with it the lymphatic channels which drain the area involved and the glands into which these channels empty. Good examples of the modern operations are those for cancers of the breast, uterus, and colon, but apparently surgeons generally do not recognise the necessity and the feasibility of carrying out a radical operation for malignant disease of the testis, and this is my excuse for bringing the subject forward.

It is necessary before dealing with the technique of the radical operation to consider the nature of the growths which occur in, and the lymphatic drainage of, the testis.

Many forms of benign and malignant growths are found in the testis, but the commonest malignant form is undoubtedly that known as a "mixed tumour." This is a true embryoma, and probably each tumour is at first benign and contains cells representative of each primary layer of the embryo. One or more of these sets of cells may undergo so-called malignant degeneration; if the hypoblastic elements, we get a columnar-celled carcinoma; if the mesoblastic, a sarcoma; if the epiblastic, a dermoid or a growth very like a chorion epithelioma. Therefore, when the representatives of one layer have developed to the exclusion of the others, we may have a pure carcinoma, sarcoma, or dermoid, as the case may be, but as a rule, and indeed perhaps always, a careful examination of all parts of the tumour will reveal representatives of all the layers. In this way we may obviously get a most varied structure in some of these tumours as evidenced by the fact that some of them have been described as chrondro-myxo-sarco-carcinomata. If we accept this view, which is that of Nicholson,[1] who has done excellent work on this subject, we must look on embryomata as comprising the great majority of malignant growths of the testis, but undoubtedly, as he recognises, we may get also encephaloid or scirrhus cancer, sarcoma or endothelioma arising from malignant change in the normal cellular elements of the organ. For the purpose of operation, however, we may divide malignant growths of the testis into two large classes. The first class would comprise those tumours consisting entirely of or containing any carcinomatous elements, and the second class would consist of the pure sarcomata. In the former, and much the larger, class one would be justified in trying a radical operation, whereas in the latter class, the pure sarcomata, such an operation would be, in my opinion, unnecessary and unjustifiable. As a rule it is advisable to remove a piece of the tumour for microscopical examination in order to arrive at a definite diagnosis, but occasionally the clinical signs will serve to distinguish one class from the other.

The next point we have to consider is the lymphatic drainage of the testis. This subject has been very thoroughly worked out by Jamieson and Dobson,[2] Cunéo,[3] Most,[4] and others. These observers have demonstrated that the lymphatic channels (Fig. 1) from the right testis open into (*a*) glands lying between the vena cava and the aorta from the level of the renal veins to the bifurcation; (*b*) glands lying on the surface of the aorta between where it is crossed by the left renal vein and the origin of the inferior mesenteric artery; (*c*) a gland lying to the inner side of the external iliac artery just below where it is crossed by the ureter; and (*d*) more occasionally into a gland lying on the surface of the vena cava immediately above the right common iliac artery and a gland lying outside the vena cava in the angle between it and the right renal vein. On the left side the primary glands are placed to the outer side of the aorta from the level of the left renal vein to the bifurcation and in the neighbourhood of the origin of the inferior

FIG. 1.

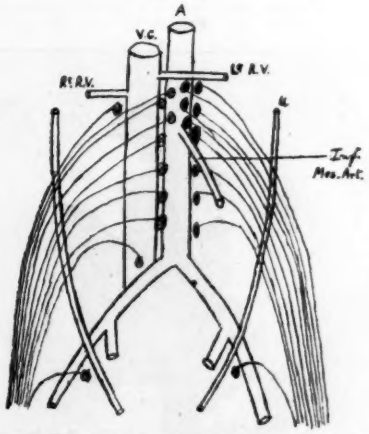


Diagram showing the lymphatic drainage of the testes (modified from Jamieson and Dobson). A., Aorta. V.C., Inferior vena cava. RT. R.V., Right renal vein. LT. R.V., Left renal vein. U, Ureter. Inf. Mes. Art., Inferior mesenteric artery.

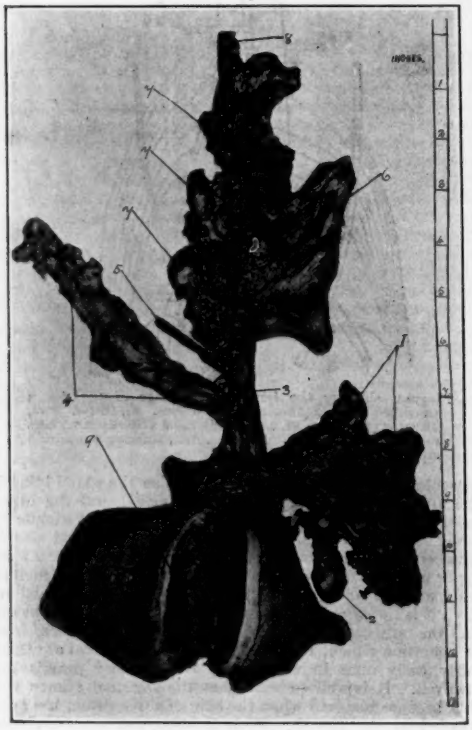
mesenteric artery, and on this side also the gland lying in the angle between the external iliac vessel and the ureter receives efferents from the testis. The secondary glands lie along the internal and external iliac vessels and deeply between and under cover of the aorta and vena cava. As the upper members of this group lie under cover of the duodenum and pancreas and extend up as high as the receptaculum chyli it is impossible to excise them. It is, therefore, obvious that the only cases in which one may hope for success from an operation which, I think, may be called radical are those fairly early ones in which only the primary glands are involved. It is well to note that the inguinal glands will only become involved when the skin of the scrotum has been invaded by the growth. From this study of the lymphatic drainage it is apparent that in order to carry out a radical operation on the right side it will be necessary to remove all the retroperitoneal fascia with its contained lymphatic channels and glands in one sheet, extending from the left side of the aorta to outside the spermatic vessels and from the level of the renal vein to where the vas deferens crosses the external iliac artery to dip into the pelvis. Similarly on the left side the lateral boundaries would be the right side of the aorta and the outside of the spermatic vessels, while the upper and lower limits would be the same as on the right.

Jamieson and Dobson[2] describe the extent of the operation as follows: "The only effective method of removing the lumbar glands would be to strip the aorta and vena cava, the common iliac vessels, and the proximal third or so of the external iliac vessels, the upper part of the spermatic vessels on either side, and the trunk of the inferior mesenteric artery of all the cellulo-fatty tissue around and between them from the level of the renal vessels downwards." They

[1] A paper read before the Surgical Section of the Royal Academy of Medicine in Ireland on Nov. 29th, 1912.

consider that it would be only in a small proportion of cases that all the primary glands could be removed, and I quite agree with them if, as they suggest, a transperitoneal operation be undertaken; but from the excellent exposure obtained by the extraperitoneal route in the case I am about to report I am of opinion that a true radical operation can be performed in all early cases, and in this view both Howard[5] and Davies,[6] each of whom has carried out an extraperitoneal operation, concur. Before deciding to carry out such an extensive operation it is only right to consider the results obtained by the older method of simple castration. Undoubtedly, if these results had been satisfactory there would be no demand for a more radical procedure, but here, as in other parts of the body, the results of local operation have been most disappointing. Chevassu[7] tabulated the end results of 100 castrations, and showed that there was a recurrence rate of no less than 80 per cent. Surely such a record as this calls for improved technique and justifies the routine employment of the radical operation for cases in which only the primary glands are involved. I am convinced that although the results will not be ideal, yet the recurrence rate will be

FIG. 2.



Reproduction of photograph of specimen. 1. Inguinal fatty-areolar tissue containing glands. 2. Gland from femoral canal. 3. Spermatic cord. 4. Iliac glands. 5. Vas deferens. 6. Psoas fascia and glands. 7. Lumbar glands. 8. Spermatic vessels. 9. Cut surface of tumour.

greatly lowered by this means. As far as I can discover from a study of the literature the radical procedure has been carried out 13 times in all; 11 of these operations were performed on the continent, the first by Grégoire[8] in 1905, and only 2, those by Howard[5] and Davies,[6] have been reported in English. The following is a report of my case.

The patient, aged 28, was admitted to Mercer's Hospital, Dublin, on March 20th, 1912, having been sent up by Dr. Thomas Lyndon, of Wicklow, for operation. He stated that he had noticed a lump in the left testicle for some considerable time, exactly how long he could not say, but it was a matter of years. Some three months before admission this lump began to increase rapidly in size. He suffered no pain apart from the dragging weight of the tumour. On examination I found that the whole left half of the scrotum was occupied by a tumour some 12 inches in circumference; the surface was slightly lobulated and the consistence for the most part was soft and semi-fluctuant, with harder areas here and there. The skin of the scrotum was somewhat adherent in places. There was a hard mass of enlarged glands in the inguinal region, but no enlargement of the lumbar glands could be made out.

Operation.—A racquet incision was made, encircling the growth and extending up the inguinal canal. The tumour, with all its coverings, was first freed, and then the cord up to the internal ring, and all the fatty tissue in the inguinal region containing the glands were dissected out. Next the incision was prolonged at first parallel to Poupart's ligament and then upwards to a couple of inches above the level of the umbilicus, and deepened through all the layers of the abdominal wall down to the peritoneum. The peritoneum was stripped up off the iliac fossa and posterior abdominal wall and well retracted inwards. The vas was followed deeply into the pelvis, ligatured and divided. The next step consisted in dividing the fascia covering the psoas well to the outer side of the spermatic vessels and up as high as the renal vessels. The sheet of fascia lying to the inner side of this incision, and with it the spermatic vessels, which were ligatured close up to the renal vessels, and all the fat, lymphatics and glands, were dissected up off the muscle until the aorta was reached. The aorta was cleared from below the renal vessels down to the bifurcation. In this way the testis, cord, inguinal glands, spermatic vessels, the psoas fascia, lymphatic channels, and lumbar glands were all removed in one piece, as seen in the specimen (Fig. 2). The chain of glands along the external and common iliac vessels was then seen to be involved and was removed in one mass. The peritoneum was then allowed to fall back into its place, the muscles were sutured with catgut, and the skin incision was completely closed except at the bottom of the newly formed scrotum, where a short drainage tube was inserted. The ease with which this extensive procedure was carried out astonished me. There was no great technical difficulty. The hæmorrhage was practically *nil*, except in the earlier stages, where the scrotal tissues were divided, and I do not remember having to tie any vessels other than the spermatics in the intra-abdominal part of the operation. The exposure of the whole field of operation was excellent. The total time of operation was an hour and a quarter. The patient was in a condition of slight shock on leaving the theatre, but he quickly reacted to routine treatment.

On the second day after operation the wound was dressed, as the patient complained of considerable pain, and it was found that the whole abdominal part of the wound was under great tension. On removing some of the stitches and passing in a dressing forceps a great quantity, estimated at over a pint, of a perfectly clear straw-coloured fluid escaped, with immediate relief of the pain. This clear fluid continued to come away in lessening quantity for several days and was undoubtedly lymph which had been poured out by the extensive raw surface. In operating on a similar case again I would drain the deeper parts of the wound and not be satisfied, as in this case, with a scrotal drain, which was obviously insufficient. The patient made uninterrupted progress and rapidly regained the weight he had lost prior to operation. Dr. Lyndon reported in November, 1912, some eight months after operation: "As far as your operation is concerned the man seems perfectly well."

Pathological report.—Professor A. C. O'Sullivan kindly examined the specimen for me and reported as follows: "The tumour is surrounded by a capsule of dense firm connective tissue which is infiltrated in its deeper layers by small tumour masses. The tumour itself is composed partly of glandular-looking spaces, very variable in size, lined in some cases by a single layer, in others by several layers, of cubical or columnar cells. These cells are large and the protoplasm is extremely vacuolated. The nucleus lies at the base of the cell (next lumen of space). Some of the spaces are empty, others contain blood, albuminous material, and leucocytes. The spaces are separated from one another in some places by fibrous tissue, in others by vacuolated tumour cells similar to those lining the spaces but more irregular in shape, and in some parts these cells form solid masses, the spaces being absent. The blood-vessels are

elementary in structure, being usually simple endothelial tubes lying in the connective tissue. A considerable part of the tumour has undergone coagulation necrosis, the structure is visible and is as above described, but the staining power is lost. There are large hæmorrhages present. The type of the tumour is that which is usually called a mixed tumour of the testis; the structure is very like that of embryonic tissue. The inguinal, iliac, and lumbar lymph glands are enlarged, firm, and white. Many of them were examined, but in none was there any trace of metastasis of the growth. The enlargement was due to a large-celled hyperplasia with commencing hyaline degeneration."

In conclusion I wish to express my thanks to Mr. L. G. Gunn for his able assistance at the operation and to Professor O'Sullivan for the above report.

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Dublin.

A CASE OF DIPHTHERITIC ENTERITIS.

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RECENT literature has demonstrated to us the possibility of obtaining the Klebs-Löffler bacillus from the urine of patients suffering from diphtheria, but up to the present I have been unable to find recorded any case of intestinal disease resulting from this organism. The following case was under my care in the City Hospital, Birmingham.

The patient, a girl, aged 18 years, was admitted to hospital on June 14th, 1911, with faucial diphtheria, the left tonsil being covered with thick grey adherent membrane; the right tonsil and uvula were clean. Both nostrils were excoriated, and a thick purulent discharge was present. The submaxillary glands were enlarged and tender. Temperature, 99° F.; pulse, 90. Antidiptheritic serum (4000 units) was given intravenously on admission, and as some membrane was still present the dose was repeated on the following day. The next day the throat was clean, but the nasal condition being still suspicious a further dose of 2000 units was injected. Recovery was uninterrupted until June 23rd, when a well-marked serum rash was present. On the following day (the 24th) she complained of abdominal pain, felt sick, and vomited bilious fluid. On the next day the pain was more severe, and became localised to the umbilical region, being accompanied by a feeling of fulness. An enema of soap and water given in the evening brought away two pieces of membrane, thick and fibrinous, each about 6 inches long. One, apparently a cast of a portion of the small gut, was hollow, and easily allowed the passage of a glass rod through it. More serum (14,000 units) was given in divided doses during the next three days. On the 28th the temperature, previously normal, rose to 102·4°, pulse 100, and the patient appeared extremely ill. Enemata on the 28th and 29th resulted in several portions of membrane being voided. On the 29th, with a falling temperature, the patient complained of intense abdominal pain at the umbilicus, the abdomen being distended, motionless, and rigid, and extremely tender on palpation. Percussion gave a tympanitic note all over. On the following day the temperature was normal and the pain had quite disappeared. No further membrane was passed until July 4th, when a small necrosed portion about 3 inches long came away with an enema. The patient's further progress was uneventful and she was discharged cured on July 31st.

Bacteriology.—Cultures made by implanting well-washed portions of the membrane on blood sera, and also by smears on blood sera and nasgar media, showed numerous well-marked polar-staining bacilli by Neisser's method and toluidine blue. Numerous attempts were made to plate this organism without success as each plate was overgrown with bacillus coli. Microscopic preparations made by teasing out the membrane to some extent and staining by the above methods showed large numbers of the Klebs-Löffler bacillus.

Birmingham.

FACIAL CRINKLES AND EMOTIONAL GRIMACE.

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THE Clinical Aspects of Emotion and Action were admirably discussed by Dr. T. Claye Shaw in an address to the members of the North London Medico-Chirurgical Society[1] in which he reviewed the subject mainly from the standpoint of the mental alienist. The present article is an attempt to trace the ontogeny of emotional grimace from infancy onwards by means of facial crinkles, and to show how these integumentary folds lose much of their expressive significance as age advances. In modern civilised life the healthy adult seldom, if ever, signifies by violent facial contortion painful or degrading passions. The grimace conventionally fitted to the expression of any such emotion can be studied as a rule only upon the deft visage of an actor.[2] The crinkles of infancy, on the other hand, are readily summoned to action by transient passions; and some of these lines undoubtedly stipple the mature countenance in after life. Yet early adolescence, even when violently excited, cannot quite reinstate the emotional expression of babyhood.

FIG. 1.

Face of a child preparing to cry (age under 3 weeks).

A centre of infantile emotion.—A babe at birth is poorly equipped for its struggle in life, and a mother's fostering care is at first constantly needed. Hence the temporary separation of mother and child must have created at an early date in man's history a want of some means by which the infant could summon the parent so often as the need arose. A neuro-muscular centre clearly adapted to this purpose was gradually evolved. That heritage of "auld lang syne" has been probably handed down with little modification to the twentieth century infant. The first sign of activity in this "pre-organised mechanism for crying and sucking"[3] is the contortion of the infant's features. Emotional expression is probably reduced to its simplest terms in the new-born—that is, to a pitiful indication of bodily discomfort. In

[1] See THE LANCET, Feb. 11th, 1911, p. 353.

[2] Sir Charles Bell, with characteristic modesty, in a preface to his well-known work on the Anatomy of Expression in Painting (1806 edition), apologises for the slightness of the sketches which accompany the text, and moreover states that "under the graver they have assumed an appearance more soft and finished than was perhaps to be desired, and certainly more in need of an apology for their incorrectness." Charles Darwin, in his work, Expression of the Emotions, obtained photographs for examples of violent facial emotion in the adult from the face of a professional actor. According to a well-known writer, Miss Ella Hepworth Dixon (*The Sketch*, Jan. 10th), even laughter is tabooed in English society, "especially at a play." There is nothing new in this idea. "A fool lifteth up his voice with laughter, but a wise man doth scarce smile a little," saith the sage in Ecclesiasticus, 130 B.C. (xxi., 20).

[3] The Physiology of the Emotions, by Dr. F. W. Mott (Brit. Med. Jour., vol. i., p. 855, 1908).

the face a puckered bulge of integument over the forehead at the root of the nose is probably the first intimation an outsider obtains of the child's feelings. Meanwhile, the surrounding features are, as it were, dragged towards this centre of motor activity. The nose-tip is tilted upwards and the upper lip tightened. The inner canthi of the closed eyes are drawn together, the eyebrows converge, and the swollen mid-frontal region is depressed. Even the mouth at first is tightly shut, the lips squeezed together, and the chin forced upwards. (Fig. 1.) Soon, however, the jaw drops, respiration becomes spasmodic, and cries are uttered. I shall analyse the various phases of this primitive grimace hereafter in detail. (Figs. 2 and 3.) Both the musculature

FIG. 2.

FIG. 3.

Reproduction of two photographs of another child at different stages of crying. Fig. 2, the early stage. Fig. 3, later stage. (Age under 2 months.) I am indebted to Mr. Lewis Thatcher for the above photographs of very young children.

and the innervation of the grimace are seemingly very complex. We must nevertheless remember that the human infant, although not quite so helpless at birth as a marsupial, has not only an incompletely developed brain, as we well know, but, what is less appreciated, it also has an incompletely differentiated neuro-muscular system. The tegumentary sheath of the young face[4] cannot be mapped out by its emotional reactions into the definite muscular entities of the anatomical text-book.[5]

The following muscles are more or less involved in the zone of contraction: pyramidalis nasi, corrugatores supercilii, levatores labii superioris alæque nasi, compressor naris, frontalis, and orbiculares palpebrarum et oris. Even the mental muscles are briefly involved as above mentioned. The centre derives its motor activity from the third and seventh cranial nerves, and its afferent fibres from the fifth and sympathetic. Moreover, its position on the mid-vertical of the face includes tissues upon each side of that plane. Efferent nerves supplying these districts are derived from nuclei ranged upon opposite sides of the Sylvian aqueduct and fourth ventricle. In times of stress each nerve acts by default independently of its fellow. Hence lopsided grimace is not unusual in cases of facial palsy and hemiatrophy.

The genesis of facial crinkles.—The pitiful grimace of a babe apparently starts in the contractile zone over the glabella. When this neuro-muscular cushion is violently excited, swollen strips of spastic muscle can be seen stretching ray-like therefrom into the surrounding placid tissues, and ultimately disappearing some few millimetres from the centre. The most conspicuous and important strips of tense muscles, both ontogenetically and phylogenetically, are perhaps those that straddle the nasal ridge like an inverted V. Each naso-buccal crinkle passes downwards and outwards from the nose across the cheek and there foreshadows the naso-labial fold of later life. The infant's crinkles are, however, more expansive than the naso-labial folds, for they not only form a ridge across the nose, but they also extend downwards considerably below the corners of the mouth. The naso-labial fold is mainly due to a hypertonic levator labii superioris alæque nasi. The naso-buccal crinkle implies the active contraction of that muscle and of portions of several others (e.g., pyramidalis nasi, orbicularis oris, zygomatici, &c.). The upper border of the glabellar bulge is somewhat above a line joining the eyebrows, and is usually prolonged on either side as a well-marked bifurcated crinkle, one arm of which follows the upper edge of the bony orbit, the other branching off from the main crinkle at an angle of 45° or thereabouts, and at a point almost directly above the inner tarsus of that side. These crinkles, with the naso-buccal already described, together fashion in low relief a sort of St. Andrew's cross straddling the child's nose and dragging all the features within the contractile zone towards the centre. At the centre itself—that is, at the root of the nose—there is a transverse wrinkle whence the two naso-buccal crinkles apparently arise.

The significance of an infant's grimace.—A large number of mammals, perhaps a majority, enter life sightless. The human fœtus, on the other hand, unlike a kitten or a puppy, is not born with its eyelids sealed for nine days. Yet these screens are seldom raised during that period. The glamour of daylight is doubtless prejudicial to the development of the infant's eyes. For some weeks after birth the quantity and quality of the admitted light is automatically regulated by prolonged closures of the eyelids. Under these conditions the brightest rays of sunshine are so sifted and modified that only waves at the red end of the spectrum—that is, the blood-tinted light which penetrates the translucent lids of the closed eyes—can as a rule stimulate the immature retinæ of the child.[6] With such facts confronting us it will be unnecessary to ascribe any special significance, as some authorities have done, to the coincident closure of the infant's eyes during a crying fit. For instance, the assumption that the production of tears is assisted by these facial contortions is beside the mark when we consider that at birth the lacrymal apparatus is still incomplete, and that children do not weep until they are some weeks old;[7] or that grave injury would result to the distended vessels of the healthy eyeball if they were uncovered by the lids during these convulsive seizures. In older children the eyes are often partly opened during fits of crying, although such children are far more violent in an emotional sense than are those of an earlier age. (See Figs. 4 and 5.)

[4] The late Sir G. M. Humphry, F.R.S. (Observations in Myology 1872, pp. 115, 135, &c.), concluded from dissections of Lepidosiren, Uromastix, Cryptobranch, &c., that the facial muscles are a forward extension of the ventral section of the dorso-ventral muscular sheath of the primitive vertebrate. The masticatory muscles (the temporal, and probably the masseter and external pterygoid), on the other hand, are an expansion of the dorsal portion.

[5] Compare diagram of facial muscles in Bell's work (op. cit., p. 58) with that in Professor Quain's Anatomy (1882, vol. i., p. 274), and note the differences in detail.

[6] "An infant very soon sees light, but it does not show that it sees an object held in front of it for some weeks." Brain Structures Concerned in Vision. Bradshaw Lecture delivered before the Royal College of Surgeons of England by Mr. F. Richardson Cross, December, 1909.

[7] Stephen Mayou: Reports of Moorfields Hospital, 1908; C. Darwin, op. cit.

An important facial distortion—namely, the dropping of the lower jaw—is very constantly associated with these same psychic and neuro-muscular activities. The relaxation of the mandibular muscles soon after the contraction of those of the naso-frontal zone offered, I believe, an interesting example of the "reciprocal inhibition of antagonistic muscles" so ably elucidated by Professor C. S. Sherrington in a series of papers on that subject[8]—a stimulus, in other words, which promoted the contraction of the two naso-buccal crinkles with the elevation of the nose tip and the retraction of the upper lip, reciprocally inhibited the muscles closing the mouth. We then had the characteristic physiognomy of the crying child.

A frequent cause of the reciprocal movements throughout man's history has been in my opinion a sudden chill to the surface of the body. Spasmodic breathing and the explosive

FIG. 4.

Face of an older child. (Note the half-closed eyes, &c.)

utterance of the primitive labial sound "ba" or "pa" by the opening mouth—two phenomena closely associated with those featured writhings and the origin of oral language—were subsequently induced by the like stimulus; for doubtless the sudden access of cold to the surface of the infant's body, easily chilled during the temporary absence of the mother, had always been an eventful factor to start the pre-organised mechanism for crying. A detailed discussion of these interesting subjects is, however, beyond the scope of the present paper.

The after-history of the infantile grimace.—After the advent of teeth the infant soon ceases with gaping mouth and tip-tilted nose to grope blindly over the warm bosom of its mother for the elusive nipple. The sublime self-centration hitherto so openly characteristic of its actions as a suckling becomes less in evidence as its percipient horizon widens; and nowhere can we follow the objective changes associated with this expanding outlook more closely than in the mobile features of the growing child, for its knowledge of the environment is mainly acquired by means of the organs of special sense. Of these organs the eyes, the nose, and the mouth, owing to their position upon the facial contour and their near relationship to the naso-frontal centre of infantile emotion, are most important from our present standpoint. It is to these features, therefore, that we must chiefly look for clues to elucidate this somewhat intricate subject.

If we compare the fully contracted naso-frontal centres of sucklings with those of fretful children of older growth we shall find, besides the many hereditary details which stamp the personality of each little one, certain broad lines on which the older children differ from the younger. In the early days of infancy the value of the ill-developed eyes as receptive organs is small, and, as before stated, they are open only during short quiescent periods, and presumably never whilst the naso-frontal centre is activated. When, after years of growth, didactic vision has taught the child much of its knowledge of the outer world and imbued it with a distrust of its surroundings, the lids still droop pending emotional moments, but the eyes are seldom closed upon these occasions. Tears, too, may flow if the outlook is distressing. Skin-fold crinkles can now make their appearance as the interstitial fat in the facial integument of the suckling diminishes, leaving the subcutaneous tissues flaccid. These modifications of childish grimace at different ages seem in a way to keep pace with the development of man's widely stereoscopic visual organs, and to my mind suggest a gradual differentiation of the neuro-muscular elements composing the glabellar zone. Whilst a higher mentality may strengthen our self-control over each facial muscle as age advances, it renders emotional expression by sudden grimace more difficult and unseemly, yet sunshine and any bright luminant can always partially activate this contractile centre. The area and intensity of the resultant contracture depend largely upon the brightness of the source of light and the angle at which the latter strikes the eyes. Knitting the brows, lowering the lids, raising the upper lip, and other grimaces are often separate indications of eye discomfort from light-waves.

The absence of the prognathic snout from the human profile possibly explains how mankind rely nowadays rather upon eyesight than upon the sense of smell for a true appreciation of the nature and position of their surroundings. So long as the chief centre of infantile grimace consists of a poorly differentiated musculature which, besides acting on

FIG. 5.

Face of a still older child.

the eyelids and forehead, compresses the nasal bridge and tilts the nostrils, the nose is in the main represented by a putty-like knob of flesh. Subsequently the uptilting force lessens, or is by preference concerned in tightening the upper lip, and the nose normally expands into the arched projection of daily life. Perhaps because of its comparative immobility, this organ assists less actively than the eyes and mouth in facial expression. Yet in modern society small movements have a grave significance. For instance, a slight elevation of the nose tip greatly enhances the snort of disgust or the sniff of my Lady Disdain. On the other hand, the widely scattered reflexes associated with the act of vomiting can at times be evoked by a stink, specially during early adolescence. Even in later life a disagreeable odour may modify facial expression, although in that case the emotional effect is usually confined to the nasal muscles.[9]

[8] Proceedings of the Royal Society, May 18th, 1905, and elsewhere.

[9] The advantage of supplementing mental imagery in the conventional depiction of disgust by sniffing a paper saturated with an evil-smelling chemical. Emotions and their Expression, lecture at the Royal Institution, 1910, by Professor Mott.

I have already described how the movements of grimace can profit a crying infant by calling attention to its bodily needs. In no case, perhaps, do we find this fickle changefulness more obvious and more useful than in the action of the muscles about the mouth. The cheeks, lips, and tongue of toothless infancy are for the most part engaged in applying a button-hole mouth to an eleemosynary teat. When teeth are cut, man, in common with other mammals, obtains his food farther afield, from ofttimes unfriendly sources, and perhaps at some personal risk. Modern civilisation may shift these social and economic troubles from one individual to another, but no administrative provisions can abolish them altogether. Yet the muscles around the mouth continue to exercise their primitive function of closing the lips upon the food within that cavity; but they also undertake other important work in the domain of grimace. One of the most frequent contortions is the retraction of the lips with the display of the canine teeth. It has been suggested that by so doing the soft tissues around the mouth are to some extent withdrawn from injury while the teeth are preparing to bite. If that is the case, civilisation has chastened the spirit and thereby changed the purport of this common grimace. The conventional smile of the society dame hardly suggests the savage snarl of the prehistoric forebear. Yet the pose of features in the two cases was probably much alike. Sane manhood, in expressing mature dislikes, seldom nowadays reverts to the gaping gesticulations of peevish childhood. Though a songstress, or perchance a mob orator, needs must, the grimace is unpleasant and implies boredom. In brief, modern society rightly checks the betrayal of thought by inopportune grimace.

Hove.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

The Treatment of Heart Disease in Children.

A MEETING of this section was held on Dec. 13th, 1912, Mr. A. H. TUBBY, the President, being in the chair.

Dr. EDMUND CAUTLEY opened a discussion on the Treatment of Heart Disease in Children. He said that reference to the standard works of 25 to 35 years ago showed that the recognition of the frequency of heart disease in children was of comparatively recent origin. Modern methods of treatment were a survival, a modification, and an improvement on those of the past. Especially the improvement depended on the recognition of myocarditis and its results. To some extent treatment was modified by age, for in childhood the heart was a growing organ. Fortunately, the degenerative changes consequent on age, alcoholism, syphilis, and renal disease were extremely rare. Functional disorders were comparatively unimportant. It was urged that in many so-called functional cases the primary cause was myocarditis, a sequel of infective disease. Rest was the most important factor in treatment. Its duration must be in proportion to the degree of dilatation dependent on myocardial disease. It was important during rapid growth and in cardiac disorders at puberty, periods at which overstrain must be carefully avoided. The duration of rest differed in endocarditis, myocarditis, and pericarditis; it was most prolonged in myocarditis. Subsequently massage and exercises, passive and active, were useful. Nauheim methods and electrotherapeutics must be considered. In acute inflammations the older methods of bleeding, blistering, and mercurialisation were still used in a modified form. Blistering was of doubtful value in endocarditis and myocarditis, but appeared distinctly beneficial in pericarditis. Bleeding was used with caution. Mercury was of value if the liver became congested. The pill of digitalis, squill, and mercury had not been improved upon. Purgation was necessary in œdema and backward pressure; and in all cases the bowels should be kept open by mild laxatives, such as senna. Diuretics were also needed, and their action could be assisted by dry-cupping over the kidneys. Attention was paid to diet in acute inflammations and in cardiac failure, to the limitation of fluid and salts in œdematous states, and to the ordinary diet of compensated valvular disease. In the matter of drugs the value of digitalis and its modern laboratory preparation was referred to. Formerly the infusion was thought the most valuable, now opinion was in favour of the tincture, whilst some preferred digalen, digitalin, or digitalone. Diuretin and theocin sodium acetate were comparatively modern drugs. Vaso-dilators were practically never required. Morphia, aconite, and belladonna might be of value. It was a matter for argument as to what was the value of salicylates in myocarditis and of iodides in inflammation. In pericardial affections the use of paracentesis and of drainage was considered, as well as the more recent operation of cardiectasis for adherent pericardium.

Dr. JAMES MACKENZIE spoke of some manifestations of a healthy heart in the young which were frequently taken as indications for treatment. He said that as a first step to treatment it was necessary to have a clear idea of what they were going to treat, and the significance of this was brought out by considering what was the essential purpose of a medical examination. This was to determine the prognostic significance of certain phenomena and their bearing on the presence or likelihood of heart failure. It would be shown that this purpose frequently failed in dealing with such phenomena as irregular action of the heart and murmurs. The absence of reliable data had hitherto militated against the obtaining of a prognosis based on trustworthy grounds or a basis for an intelligent therapy. A description was given of the means by which this deficiency could be made good, and was illustrated by recent observations on the mechanism by which certain irregularities were produced and their prognostic significance. The bearing of a functional murmur on the heart's efficiency was discussed, and it was shown that certain irregularities and functional murmurs were perfectly compatible with healthy hearts. The relation of functional murmurs to heart failure was considered, and attention was drawn to the fact that the cause of the murmur was not the cause of the heart failure, but that the heart failure was invariably due to the impairment of the heart muscle. The means by which impairment of the heart muscle could be detected was shown in many cases to depend not so much on the physical signs as upon the due appreciation of the functional efficiency of the heart muscle. The signs by which one could recognise the functional efficiency of the heart had not received that consideration which was their due, and it was on this account, and also on account of the imperfect teaching of cardiac symptomatology, that a mistaken conception of the meaning of these phenomena was so widespread. Evidence of these misconceptions drawn from personal experience was offered, showing how normal phenomena had been taken as indications for treatment, and as a consequence how cardiac therapy had become burdened by many useless drugs and methods.

Sir JAMES GOODHART said he came to the meeting very much attracted by Dr. James Mackenzie's remarks, intending to say "ditto," but he did not know how much confirmation it would involve. He did not think it would be possible to express his own feelings on the subject of the debate better than Dr. Mackenzie had just expressed them. As he had had 40 years of examining these cases he felt he had a right to venture an opinion. On one point he was not inclined to agree with Dr. Cautley. He understood Dr. Cautley to say that he did not think functional disease in childhood was common, but he (Sir James Goodhart) was there to say—and he hoped Dr. Mackenzie's paper would be read far and wide—that if he had estimated heart conditions aright, he saw many more cases which were said to be heart disease in children in whom there was nothing the matter than he saw of heart cases in which there was something the matter. And the reason was, as Dr. Cautley said, that though bad heart cases were recognised at once, there were a large number of borderland cases in reference to murmurs which were thrown into the limbo of diseased hearts, but in which there was no disease whatever. He could not follow Dr Mackenzie and give cardiac observations with the cardiogram and muscle tracings, but his opinion was as just stated. A few weeks ago he had a long journey into the country in connexion with an exactly

similar case to that of which he was speaking. There had been great talk of heart disease in a delicate child who had suddenly fainted after going to church and being somewhat excited. The child was put to bed and condemned to remain there without being allowed to move for weeks. But there was nothing the matter with her. After recovering from her faint the heart was quite regular. The apex beat might be in a different position from the normal, but in children it varied enormously. He felt amused at Dr. Mackenzie's remark that he had had a large amount of unpleasant correspondence with various medical men in regard to this condition, and he (the speaker) sympathised with him in that. The consulting physician was placed in a difficult position, for a patient came to him and said, Dr. So-and-So says there is heart disease, but the consultant thought there was no heart disease. In such a fix somebody had to be sacrificed, and the public would regard the consultant as either a very wise man or a fool. The fact was that the man in general practice did not take time to ponder his diagnosis; because the patient had fainted he was apt to say it was heart disease; the patient was put to bed and compelled to remain there without the matter having been properly thought out. He pleaded for more time to be taken over the diagnosis; for in these hurried diagnoses, somebody's reputation had to suffer. The treatment of all these cases was largely a matter of rest, and the crux of the treatment was to know how much rest was required; for even in cases of definite advanced heart disease there could be too much rest. The patient should be allowed to get up as early as possible under careful watching. Even in the case of children with heart disease one could order too much rest. He would mention one condition in the adult which bore on child life, and which had always seemed to him extremely interesting—namely, mitral stenosis. That rarely occurred in children, but on arriving at 16, 18, or 20 years of age it was common. It was essentially a disease of females. He did not think it was ever found as a congenital disease; it was a rheumatic endocardial condition leading slowly to thickening. The best treatment for it was to allow the patient to slowly get about, when she could be kept comparatively well for a long time. He likened that condition to stricture of the urethra. Before such a stricture became a serious disability the condition had been in existence a considerable time, but it had been kept more or less open by the passage of the frequent streams of urine. The same happened through the blood passing the valvular apertures in the case of the heart.

Dr. JOHN HAY said he looked upon the present discussion as of value in two ways: (1) they heard the opinions of such men as Dr. Cautley, Dr. Mackenzie, and Sir James Goodhart; and (2) it gave the opportunity of more correctly arriving at and emphasising certain truths which were in the air. In what way did the treatment of heart disease in children differ from that in adults? Whatever views were held as to the organism causing rheumatism, most would agree that it was an infective process by an organism, probably related to the streptococcic group, and he believed it took place in childhood. So that the outstanding difference between the treatment of heart disease in children and in adults seemed to be that in children one was dealing with an infective process in its inception; while in adults one was dealing rather with the effects of that infection, such as the sclerosis and the myocardial changes. Therefore, the prophylactic treatment was an aspect which needed emphasising. The treatment in the active stage and during the subsequent "slumbering infection" varied by exacerbations made all the difference to the future life of the individual. From five or six years onwards rheumatic disease was one of the most fatal of illnesses, and he did not think prophylaxis had been sufficiently insisted on by the two openers. In order for prophylaxis to be efficient it was necessary to have clear ideas, as far as they were possible on such a subject, as to rheumatic auto-infection, and the idea was gaining ground that the portal of entry of the infecting organisms was quite frequently the naso-pharynx. He suggested, therefore, that when a child showed any evidence of rheumatism the naso-pharynx should be persistently treated from that standpoint, parents being persuaded to bring the child as regularly for that as for adenoids. If this were done he felt sure more children would be enabled to reach maturity. The practitioner should be on the look-out for peevishness and fractiousness and anæmia, with "growing pains" about the child. The course he recommended was now easier owing to the systematic examination of school children, and the radical attention being given to the tonsillar condition would probably bear good fruit in the future. With regard to the doubtful cases, one felt that the occurrence of arrhythmia had been misunderstood when combined with pallor and slight faintness. The medical man took the grave view, for it was the unknown which was feared. Many forms of arrhythmia could be recognised without the polygraph. The pulsus alternans could be recognised in the ordinary taking of the blood pressure, for a point was noticed at which the smaller beats ceased to reach the wrist. Until the full meaning of these arrhythmias was understood one should not attribute too much significance to the slighter murmurs which were heard; then there would be fewer persons leading miserable lives as condemned examples of cardiac disease. With regard to dilatation and varying size of the normal heart, there was one good rule which he had found helpful in the case of a child suffering from rheumatism, or diphtheria, or influenza. On the first occasion of seeing the child he marked out on the chest wall with silver nitrate the left and right limits of dulness; this mark persisted for the ensuing few weeks, and formed a real test of what was taking place in regard to alterations of size and position. In diphtheria one might find a rapid increase to the left. For pericarditis prolonged rest had been mentioned; and the late Dr. Barnard also mentioned the necessity of increased rest after pericarditis, because the softening of the pericardium had interfered with one of its functions, that of restraining sudden dilatation of the ventricles following on too early exercise after the illness. It would be agreed that the chief indication for paracentesis was dyspnœa. In rheumatic cases the occurrence of fluid was rare. He would like to hear the opinion of those present as to the value of alcohol in the treatment of these children. A Viennese professor said that alcohol should be excluded from the pharmacopœia of children, and he, the speaker, would like to hear what evidence there was that alcohol was actually a cardiac stimulant. It had a short temporary action as a carminative, but his impression was that it was not a true cardiac stimulant.

Dr. J. WALTER CARR said he would limit his remarks, owing to the pressure of time, to the treatment of acute rheumatic affections of the heart in children, especially as the treatment of chronic heart disease in children did not differ materially from the treatment of that in adults. His experience was drawn mainly from cases in hospital wards, in which functional diseases were not usually met with. Dr. Mackenzie and Sir James Goodhart saw patients in a different social position, and so they encountered these functional states. He had little to add to or criticise in what Dr. Cautley said. There should be rest first and foremost, of duration proportioned to the rapidity of the pulse and the degree of carditis present. The rest should be more prolonged if there was pericarditis as well as myocarditis and endocarditis, and most prolonged where there were nodules, because they pointed to a myocarditis in very aggravated degree. But in any case in which one was dealing with rheumatic trouble in the heart one must assume that myocarditis was practically invariably present. His experience with regard to salicylates was similar to Dr. Cautley's. Repeatedly he had seen, in patients who were taking salicylate of soda, relapses of cardiac rheumatism occur, and the supervention of pericarditis. A few weeks ago a child, aged 9 years, came in with an acute rheumatic attack, and under the administration of salicylate of soda there was rapid improvement, and the temperature sank to normal. The boy was continued on 50 gr. per day and kept at rest, but after the temperature had been normal a week acute pericarditis supervened. He could recall many similar occurrences. It was true that he had seldom tried the heroic doses which Dr. Lees favoured, but in the one or two cases in which he did the cardiac weakness developed so rapidly that he was thankful to get down to smaller doses. He had many times tried the treatment with which the name of Dr. Richard Caton of Liverpool was associated, that of prolonged rest, with blistering over the præcordium, and moderate but prolonged doses of iodide; but, like Dr. Cautley, he had not seen any marked benefit from it beyond what he had seen resulting from rest alone. With regard to the ice-bag, he used it generally in acute pericarditis, and it often gave some relief. If the child liked it he persevered

with it; but if not he gave it up. With regard to paracentesis pericardii, he would summarise that briefly by saying that for all practical purposes it was never required in rheumatic pericarditis. In convalescence, though the patient was anæmic and iron seemed to be indicated, it frequently disagreed with the patient, and it seemed to favour the tendency to relapse. He would be glad to know whether the experience of other clinicians coincided with his in that respect. With regard to digitalis in these cases, he knew of no more valuable aphorism in Dr. Mackenzie's writings than that in which he said that digitalis was useless when the heart was in the grip of a toxin. He (Dr. Carr) realised that so much that he practically never used it in the acute or the subacute stages; he had never seen it do good then, or slow a rapidly acting heart; therefore it was likely to be harmful rather than beneficial. But there was one food which he accidentally found to be beneficial in the convalescent stage—namely, pure cod-liver oil; not in the dilute form it assumed when combined with malt and other things. He gave it in doses of half a drachm, increased to a drachm, two or three times a day. Children took it very well, and he had seldom seen it disagree. Massage and regulated movements he had tried in some cases, but he had seldom been able to trace to them marked beneficial results. To summarise, it must be admitted that to a large extent, until there was available an effective anti-rheumatic vaccine, the treatment of these conditions was palliative, and in a few there was little or no improvement; the child went steadily from bad to worse, there were successive relapses, and finally death supervened. Fortunately, in most cases temporary or steady improvement occurred, tempered from time to time by a tendency to relapse. Though almost invariably a mitral murmur was left there was often very little dilatation, and the child left the hospital with comparatively little damage to the heart, and its prospects in life were not seriously impaired. But in order to achieve these favourable results early treatment was essential. In children the joint phenomena were comparatively slight, and only too frequently, especially among the poorer classes, the child was allowed to go about while suffering from active heart disease; hence they were brought to hospital weeks afterwards suffering from dyspnœa, and then their treatment was comparatively hopeless. Secondly, one had to guard against those terrible relapses which were seen in cases of this type. But that question had been so well developed by Dr. John Hay of Liverpool that he would not further enlarge upon it.

Dr. G. A. SUTHERLAND thought the section had been very fortunate to hear two papers—one dealing with organic disease of the heart ond the other dealing with its functional disturbances. Dr. James Mackenzie, in his paper on functional condition, brought forward some views which were novel, and seemed inclined to blame the teaching at the medical schools for the fact that they were novel. But it was scarcely fair to blame the teachers, because they themselves were ignorant of those facts. It was a course open to anyone to refute Dr. Mackenzie's views, but he did not propose to essay that himself, as he thoroughly accepted them. This pronouncement he regarded as the most valuable statement on the subject of cardiac irregularities and functional murmurs in childhood that he had ever heard, and certainly superior to anything he had read. Dr. Mackenzie had opened up an entirely new field, and had done much to clarify the views of the profession on the subject of heart disease. When the author of that paper spoke of some manifestations of the healthy heart, he supposed he meant that the presence of those irregularities was a manifestation of the healthy heart, and would suffice to show that the heart in question was healthy. The chief purpose of the thesis seemed to be to show that those irregularities and murmurs were not indications of heart disease. If he meant that the mere presence of those manifestations meant that the heart was healthy he did not think that had been proved to-day. With regard to signs found in functional disturbance on physical examination, it was important to recognise that many of those symptoms which were frequently associated with heart disease were very common in children apart from the existence of heart disease—he referred to breathlessness on exertion, palpitation, fainting, præcordial pain, and distress. Those were commonly regarded by the lay public as indications of heart disease, and not infrequently the medical attendant found it a convenient diagnosis to make. But in most cases those signs were not due to heart disease, but to a part of the anatomy which the pure cardiologist had not recognised—namely, the central nervous system. With regard to acute heart disease, the most important factor in treatment was rest. In addition to that, he did not think it mattered whether blistering, or painting, or hot fomentations, or cold applications were used. Dr. Mackenzie now and in his previous writings had brought out the very important point with regard to organic heart disease that one should not lay so much stress on the physical conditions found. With regard to adults, he believed that statement held good in most cases, and the point which Dr. Mackenzie emphasised was of the very greatest importance. But in the case of children some qualification must be made, for in most children after the carditis or valvulitis (i e., the active condition) settled down the mischief was done, and as a rule there were no symptoms left. The symptoms did not usually develop until much later in life. The child with such a damaged heart might pass through adolescence without symptoms, as they did not appear until later. Thus, if prognosis and treatment in such cases were to be based upon the symptomatology, there would be but little to go upon. He maintained that much was to be learned from physicial examination of the heart. It was by that alone, in many cases in children, that the heart condition could be determined. Dr. Mackenzie had entered a protest against the treatment of certain cardiac irregularities; and he (Dr. Sutherland) wished to protest against the treatment of hearts of children in whom the whole activity of the disease had passed off, leaving no symptoms. Those who were seeing the class of children attending public elementary schools knew how often the child was referred to someone because it was found that the heart was affected and some treatment was supposed to be necessary. In the absence of symptoms no direct heart treatment was required, but treatment was needed, as Dr. Cautley mentioned, to prevent the further rheumatic infection and prevent strain on the heart. If the child went about taking exercise in its own way it would not strain its heart; but if ordered to do certain exercises which were carried out by ordinary healthy children the heart would suffer.

Dr. ALEXANDER MORISON thought Sir James Goodhart did not quite understand Dr. Cautley when he said functional cardiac disorders in children were unimportant. All who had spoken since had emphasised Dr. Cautley's standpoint. He presumed that what was meant was that the irregularities in children were unimportant. In regard to the acute condition, Dr. Cautley had emphasised the point which Dr. Sturges brought out very fully. Dr. Cautley had spoken of myocarditis as the essential key to the situation, and very interestingly spoke of the fact that one was dealing with the growing heart. Dr. Sturges insisted that in the young one was dealing, not so much with endocarditis, or myocarditis, or pericarditis, but frequently with a generalised carditis. Digitalis used in any febrile condition failed to have any influence in checking the rapidity of the heart's action. But, no doubt because of the traditional dread of the consequences of the use of the drug, opium was not, in his opinion, pushed as it should be in these cases. Owing to the constitutional excitement in a child one found a sort of pathological belladonnaism—a quick pulse, dilated capillaries, a dilated pupil, and a standing physiological antidote to over-dosage by opium. As a rule, too little opium was given in the treatment of acute heart disease, properly so called, and the dread of it was greater than was justified. With regard to the chronic conditions, much depended on whether the heart was influenced by its surroundings. In the condition of cardiac infantilism one found a patient aged 15 or 16 with the development of a child of 10 or 11 years of age. The child was very anæmic, undergrown, puberty was delayed, and after death he had found the thyroid gland atrophic. For that reason it had been his custom to give these children thyroid in the expectation that the long-continued labouring heart would thereby have its activity diminished and its power thus conserved. There was an exhaustion of that gland in consequence of the labour it had had to deal with. The other point he desired to mention was that of cardiectasis, which

was practised for the relief of these cases. His experience of that operation had not been very rosy. His most successful case was that of a young man who had come under his care in his "teens," and was much relieved by removal of ribs to give more space for the heart. He did well for four years, and then had an opportunity of going to a convalescent home; but in six weeks he came back to hospital with manifestations of infective endocarditis, and died in a month. His pericardium was totally adherent to his skin flap. So long as there was no drag on it, adhesion of the pericardium to the skin flap was innocuous. Another case was that of a boy who was operated upon for costo-pericardial and visceral adhesions. He lived for three months and was apparently relieved by the operation; but he then had pericarditis and died. Another child, the subject of cardiac infantilism, had an adherent heart; it got over the operation and seemed comfortable, but went back to bed and died with a clot in the pulmonary artery. Probably the principle was right, however. He cordially congratulated Dr. Cautley on the masterly way in which he had presented a very extensive subject.

Dr. C. W. CHAPMAN, Dr. F. W. PRICE, and Dr. W. BEZLY THORNE also took part in the discussion.

Dr. CAUTLEY, in reply, said that in regard to the remarks he made in the paper as to the infrequency of heart disease of a functional nature in children, the views taken by Dr. Mackenzie and Sir James Goodhart in opposition to his own seemed to be based upon heart affections not exactly in children, but in adolescents. In his experience functional heart disease—not mere irregularities due to alterations in respiration—was distinctly uncommon. Many of the cases of so-called functional heart disease in children had a myocardial origin and some infective disorder, and must be treated by means of prolonged rest. He did not mean that irregularities of the heart were not met with in children, or functional murmurs. Sir James Goodhart's remarks seemed to imply—though he knew he did not hold such views—that faintness was a sign of heart disease. It was not that, nor even a sign of heart disorder, but a vasomotor phenomenon, depending more on the nervous system than on the heart. No one with an real knowledge of medicine would say that a girl because she fainted had organic heart disease, as he believed was sometimes done.

SECTION OF BALNEOLOGY AND CLIMATOLOGY.

Medical Treatment of Cholelithiasis.

A MEETING of this section was held on Dec. 12th, 1912, Dr. PERCY G. LEWIS (Folkestone), the President, being in the chair.

Dr. W. BAIN (Harrogate) read a paper on the Medical Treatment of Cholelithiasis. He said that successful treatment depended, first, upon an accurate diagnosis; and, secondly, upon a clear recognition of the causes that operate in each individual case. He enumerated the predisposing causes, such as stagnation of bile in the gall-bladder, anxiety, worry, and indigestion. He said it was generally admitted now that the exciting cause was microbic infection, but an additional causative factor must be assumed, because in typhoid fever only a small percentage of the cases subsequently developed gall-stones. The theories regarding gall-stone formation were brought under review, and it was pointed out that recent work tended to show that gall-stones were formed independently of infection. He did not think, apart from mechanical effects, such as the passage of a calculus, that gall-stones gave rise to any pronounced symptoms unless there was an accompanying cholecystitis. Attention was specially directed to the early manifestations of gall-stone disease, because during that stage medical treatment was most effective. The symptoms as a rule did not suggest involvement of the gall-bladder, consequently the affection very often escaped recognition. The symptoms varied considerably. Flatulent dyspepsia was one of the commonest; others were fulness, distension and discomfort in the stomach, acidity, heartburn, a slightly furred tongue, occasional pain in the epigastrium coming on from 30 minutes to an hour after meals induced by special kinds of food, lassitude, heaviness, drowsiness, disinclination for work, and occasionally a feeling of weight or a dull, heavy sensation in the right hypochondrium. Often symptoms of intestinal indigestion predominated. Depression of a fleeting character was a frequent symptom and might be the only one. The true nature of the case was revealed by examination of the liver. That organ might or might not be slightly enlarged, but there was invariably tenderness on pressure in the region of the gall-bladder. This tenderness, due to cholecystitis, either preceded the formation of biliary calculi or was associated with their presence. The cardinal symptoms and diagnosis of developed cholelithiasis were briefly discussed. In treating cases of gall-stone disease the first step was to improve the digestion. It was practically useless to give drugs such as urotropin to disinfect the biliary passages unless there was a marked improvement in the gastro-intestinal disturbance. By correcting dietetic errors and stimulating the digestive powers the nutrition and vitality of the individual were enhanced, the resistance of the tissues was increased, and as a corollary the affected organs shared in the general improvement. Formerly the treatment of cholelithiasis consisted in the administration of certain drugs with the hope of dissolving the biliary calculi *in situ*. It was now known that the normal gall-bladder would dissolve any gall-stone that was introduced into it under aseptic conditions. The principles of treatment therefore were to improve the digestion by adapting the diet to the patient's digestive powers, to foster nutritional efficiency by suitable forms of exercise, to disinfect the biliary passages, and to correct any injurious habits. The rational treatment of a case in the first instance should be symptomatic. When the digestion became fairly normal colalin and urotropin should be administered for several months.

The PRESIDENT remarked he was glad to see that Dr. Bain had given adherence to the septic view of these complaints. He drew attention to the fact that nearly all the items of treatment he advocated acted on the general lines of improving the resistance of the tissues to microbic invasion. He regarded the ordering of an annual visit to a spa as a reproach to the efficiency of the treatment there carried out.

Mr. ERNEST SOLLY (Harrogate) said that while appreciating the value of "medical" treatment for cholecystitis and other unhealthy conditions associated with gall-stones, he considered that once the diagnosis of gall-stones was established surgical treatment was the only satisfactory cure.

Dr. R. ACKERLEY (Llandrindod Wells) said that some recent inquiries he had made confirmed the statements of Thudichum and Brockbank as to the rarity of gall-stones in animals other than man. In 1400 post-mortem examinations since 1908 made on mammals at the London Zoological Gardens gall-stones were found in only five cases—twice in ajoutis, once in a spotted cavy, once in a musquash (all four rodents), and once in a wild swine. He considered this evidence tended to show that not bacterial infections, but the artificial habits, especially the food habits, of civilised man were much the more potent factors in the etiology of cholelithiasis. He agreed with Dr. Bain that the medical treatment must be mainly the removal of causes—one of which, the habit of taking hot drinks, and another that of taking too little plain water, had not been mentioned.

Dr. J. A. CAIRNS FORSYTH regarded the treatment of cholelithiasis as entirely surgical. No doubt cure sometimes resulted from escape of the calculi into the bowel and temporary relief might be obtained by medical treatment, but the dangers of delay were great. To postpone operative interference until complications arose was a procedure which was unfair to both patient and surgeon.

Dr. J. H. KEAY said that as one who had himself suffered from an aggravated form of the complaint he regarded the description of symptoms given by Dr. Bain as decidedly superior to that found in most medical, and especially surgical, text-books. In order to understand these symptoms one must have either personally suffered from the disease or instructed patients to make careful note and at once write down the exact position and character of the pain at the beginning, during the course, and at the disappearance of the attack. He regarded the disease as one eminently adapted to medical treatment, but there was no universal remedy, and each patient must be treated individually, and in that treatment less consideration should be given to its supposed microbic origin and more to the avoidance of worry, the improvement of digestion, and consequent character of the bile. If proper treatment was adopted his experience was that patients entirely recovered, and that it was only in very rare cases that operation was called for. Since undergoing

treatment in Karlsbad a number of years ago he had been entirely free from all symptoms of the disease.

Dr. BAIN, in reply, said that urotropin was excreted in the bile. The reason why he advocated a yearly visit to a suitable health resort was that the causes which led to the development of gall-stones were in most cases not removed by operation. He had already mentioned that biliary colic did recur after exploration of the gall-bladder. He agreed with Dr. Ackerley that highly spiced foods and most condiments should be avoided in gall-stone disease. The dietetic restrictions which he suggested in a paper last year upon functional derangement of the liver applied to cholelithiasis. Dr. Keay having commented upon the accurate description of the early manifestations of cholelithiasis, Dr. Bain stated that the symptoms were gleaned from intelligent patients, chiefly medical men. He agreed with Dr. W. Edgecombe that when a patient obtained complete relief from his symptoms it was impossible to say without an abdominal section if the calculi had broken up and disappeared. Regarding the criticism of the surgeons, his point was that they rarely saw the mild cases; consequently their dogmatic statements were based upon the manifestations of the disease in its advanced stage. They surely could not expect every case of cholecystitis, however mild, to submit to an operation.

ELECTRO-THERAPEUTICAL SECTION.

Exhibition of Cases.—Graves's Disease.

A MEETING of this section was held on Dec. 20th, 1912, at Middlesex Hospital, Dr. REGINALD MORTON, the President, being in the chair.

Dr. H. LEWIS JONES exhibited a young woman who was an instance of Belated but Complete Recovery of the Trapezius Muscle after Division and Subsequent Suture of the Spinal Accessory Nerve. The operation was performed seven years ago, and during the interval, as the patient had lived at a distance, very little treatment was carried out. The normal responses did not occur in that muscle until the present year. Electrical treatment certainly, in his view, hastened the return of power in paralysed muscle.

Mr. E. P. CUMBERBATCH showed a middle-aged woman whose recurrent nodules after removal of the breast in 1902 for carcinoma were successfully treated by means of X rays.—Dr. H. FOWLER (Birmingham) advocated quite large doses for such cases, applied to the axilla, scapula, and supraclavicular regions. He gave full pastille doses filtered.—The case was discussed by Dr. N. S. FINZI, Mr. S. GILBERT SCOTT, Mr. F. BAILEY, Dr. NORMAN E. ALDRIDGE, Dr. W. IRONSIDE BRUCE, Mr. C. R. C. LYSTER, and the PRESIDENT.—Mr. LYSTER pointed out that there were some cases in which X rays were quite useless, whatever the size and frequency of the dosage. Knowledge was not yet ripe enough to permit of the laying down of any rules on the matter.—The PRESIDENT insisted on the importance of efficient screening in order to obviate burning of the skin. He never now used metal screens, but lint impregnated with tungstate of soda.

Dr. W. K. KINGSBURY read a paper on Graves's Disease. He discussed the views prevalent as to the pathology of the condition and the symptoms. Medical treatment was uncertain and disappointing. The mortality after surgical treatment by Kocher and Mayo was 4 or 5 per cent. The object of operation was to reduce the output of thyroid secretion, and this seemed to be accomplished by applying X rays, which had the advantage of dispensing with the worry and anxiety attendant on anticipation of operation and avoiding the risks of an anæsthetic. Its action seemed to be directly on the cells lining the vesicles, helped by the contraction of freshly formed connective tissue, and possibly by secondary radiations set up in the vessels themselves. A full pastille dose once in three weeks had produced good results in a series of cases, a fairly hard tube being used. Nothing worse than an erythema resulted. During the past 12 months 17 cases of exophthalmic goitre had been treated in this way at Middlesex Hospital; 15 continued with the treatment, and of these 4 were cured, 1 much relieved, 3 still under treatment and improving as in-patients, and 5 as out-patients. Dr. Florence Stoney had reported 41 cases so treated, of which 14 were completely cured, 22 much benefited, while only 4 were unsatisfactory. After only very few exposures most of the patients volunteered the statement that they felt better.

Mr. LYSTER, in charge of the Electrical Department of Middlesex Hospital, exhibited and demonstrated the various installations, and Dr. C. RUSS demonstrated by the gold-leaf electroscope secondary radiations from various tissues.

MEDICAL SOCIETY OF LONDON.

Intestinal Stasis.

(Continued from p. 1783.)

Mr. L. E. CREASY said that he had had an opportunity of examining these cases before, during, and after operation. The symptoms which the patients chiefly complained of were indigestion, impeded respiration, tenderness over the cæcum, pain below the last rib on the right side, pain in the loin, dull pain over the right sacro-iliac joint, griping pain, and severe pain during the passage of fæces. The left ovary was often tender. Other symptoms were mental depression, faintness, neuralgia, irritability, loss of fat, and staining and darkening of the skin. He could say from close observation that the treatment advocated by Mr. Lane abolished these symptoms.

Dr. DISTASO said that constipation was a transitory or chronic condition of toxæmia which arose from the fact that toxins were liberated in the intestinal content owing to prolonged stasis. This condition produced a change in the intestinal flora in which an almost entire disappearance was observed of certain microbes which were usually present in the cæcum. The absorption of those products by the organism caused intoxication of the human body, whose powers of resistance were thereby diminished. In order to support his statements he must show that constipated persons were intoxicated; further, he must show how and where the toxins were produced, and finally, that by changing the intestinal flora the intoxication disappeared. He would also try to define the transitory or chronic condition in constipation, an important matter which would lead them to consider its evolution, since the transitory state might become chronic. As to whether a constipated person was intoxicated he would waste no words and time in discussing, as all knew well the particular tint and colour of the skin, the expression of the eyes, and the dull look and appearance. The subjective symptoms were also familiar—namely, the phenomena affecting the brain and morals. All these subjective and objective symptoms were bound up with the intestinal stasis. There was therefore no doubt that they were related as cause and effect. Mr. Lane, in his papers on this subject, gave a clinical tableau of the matter. He could not add anything clearer and more thorough than what Mr. Lane had observed. He would discuss the second question, which was, in his opinion, a most important one—namely, the seat of the intoxication. If in constipation the large bowel were removed and the intoxication was suppressed, one might conclude that the cause of constipation resided in the large bowel. We owed, again, to Mr. Lane the demonstration of this fundamental principle on which the theory of constipation and intoxication was based. Mr. Lane removed the large bowel from a constipated patient, and the patient was cured both from constipation and intoxication. What phenomena took place in the digestive tract of a constipated person? He had nothing to add to the different papers read at the last meeting and illustrated by radiograms. He would only try to sum up the observations made, and look upon them from a synthetic point of view. The first statement which supported the opinion previously mentioned was, that all authors admitted with remarkable accord that the phenomenon of constipation took place in the cæcum and in a small part of the ascending colon; secondly, the formation of the haustra in the ascending colon; thirdly, the formation of lumps in these parts; fourthly, the existence of the peristaltic waves; fifthly, the stasis can proceed so far as to occur in the lower part of the ileum, and consequently dry fæces result. With regard to the first three points, he need only quote the comprehensive works on "Radiography," by Hertz, Schwarz,[1] Stierlin,[2] and Albrecht.[3] With regard to the fourth point the antiperistaltic

[1] Münchener Medizinische Wochenschrift, 1911-1912
[2] Ibid., 1912. [3] Ibid., 1912.

movements of the intestine in constipation were also an undisputed fact. Though they might have escaped attention, they nevertheless occurred also in normal persons. He would only refer to physiology, and more especially to the splendid book just published by Cannon. He would like, however, to point out a truth which seemed to him to be of the utmost interest—namely, the existence of antiperistaltic waves in normal animals. Cannon showed that they were present in cats under normal conditions. Elliot and Barkley Smith assumed that in man the material entering the proximal colon "was still delayed by a backward current, still commingled by the activity of the walls of the sacculi." There was also no doubt that they existed in normal man, but they were too difficult to observe. On the other hand, he must point out a fact of daily observation which led him to admit the existence of these antiperistaltic waves in normal man. It was known that if one had the *stimulus defecatio* and neglected to answer it one became constipated or was in danger of becoming so. If one did not admit that antiperistaltic movements took place, then one must admit retrograde movements. This idea was gaining more ground, and he had just lately seen a radiogram by Schwarz, who pointed out that in some cases of constipation the *globus pelvicus* went back to the cæcum. Schwarz[4] called the condition *dyschinetische obstipation*, and gave some observations by Rieder who found similar movements in normal persons. This was important, but their existence in constipated people was far more important. He did not believe that the existence of these movements would any longer be denied. He would shortly discuss their effect. They converted the cæcum into a veritable shaking apparatus where the fæces, through going backwards and forwards, became dry; and as the movements were accompanied with an enormous production of gas,[5] they caused the cæcum to swell, the walls to be distended, and through their becoming thinner the bacterial products easily passed through. They resembled a filter which had been used for a long time. Consequently the walls ceased to act in a normal manner, and the strength of the peristaltic waves was diminished. As a consequence of the stasis one might easily imagine what were the results upon the entire digestive system. These were well illustrated by Dr. Jordan's radiograms, who, in accord with Mr. Lane, showed the dropping of the viscera. Such was the state of affairs in chronic constipation which doubtless arose owing to the condition of the colon, which did not work properly and so prevented the passing on of the remains of digestion in the cæcum. Therefore the power of regulation of the descent of the remnants of digestion was lost. The consequence was that stasis began in the upper part of the intestine with the dropping of the viscera, the formation of the kink, and the absorption from the small intestine of the toxic substances produced. These conditions were the worst owing to the fact that the upper part of the intestine absorbed the decomposition products with greater facility. These conditions, as observed by radiograms, resembled those found in guinea-pigs and rabbits, which were both typically constipated. If a guinea-pig's abdomen was opened up, one was struck by the fact that there was a marked agreement with the radiograms. He would consider, after having discussed the mechanical facts which accompany constipation, what took place inside the intestines. The fæces underwent certain changes. There was no doubt that the cæcum of constipated persons contained the same microbes which were present in normal persons. He confirmed this fact by examining the cæcum of three constipated people. If the fæces of constipated people were examined two things in particular would be observed. First, the fæces resembled those of a goat; they smelt very badly, had a characteristic odour, an acid reaction, and were almost black and dry. In other people, especially in the old, the fæces were of quite a different aspect. To understand what took place in the intestinal flora of a constipated man one must consider first the composition of a normal man's intestinal flora. A counter-stained film showed the presence of Gram-negative microbes belonging to the coli group, which were predominant, and also an enormous number of microbes generally. A similarly stained film from a constipated person showed an extraordinary diminution of the amount of microbes; secondly, the Gram-negative microbes which were usually predominant had almost entirely disappeared. Gram-positive microbes were now in the majority and only a few microbes were present. From this he assumed that the microbes had disappeared in the large bowel, and had in all probability disappeared in the cæcum, where radiograms had shown that the fæces could remain for 60 hours or more. In constipated persons the coli group microbes were broken down, and therefore the so-called endotoxins became free and produced inflammation of the colon with resulting intoxication. One must remember the well-established fact in bacteriology that that group of microbes was especially known for giving the so-called endotoxin, the poison which was included in the bacterial body and which required its breaking down to become free. Before making experiments he was a believer in the view of intoxication through substances of the aromatic series, but now he was of opinion that in constipation the intoxication was principally due to the endotoxin which became free. He would not deny that indol was able to produce sclerosis of the organs, but that was not the principal cause, as the poisoning through the liberated endotoxin of the microbes belonging to the coli group was very severe, and only this could explain the appearance of the organisms in constipation which seemed to be an intoxication, like that of cholera or dysentery. This suggestion, too, was based upon well-established observations. He had a laboratory attendant, a tall and healthy man, whose fæces were soft, abundant, and acid, and who did not remember ever having been constipated. Dr. Distaso had examined the man's fæces for almost two years and his urine also. The amount of indican in his urine was enormous; there was a true indicanuria. On the other hand, the urine of six constipated persons, examined by Mr. Garratt, showed only in one case a slight trace of indican. If that was the measure of the intoxication of the body through the micro-organism of the fæces, these persons, according to that theory, were not at all intoxicated. The second point, that of the clinical picture in constipation, led him also to think that the symptoms observed were due to a toxæmia of bacterial origin. Constipated people suffered from headache, cold hands, cachexia, often a slight rise of temperature, and nervous and circulatory disturbances. These symptoms suggested a toxic action of bacterial origin. Of the utmost importance was the relation between constipation and nervous diseases. A medical friend of his was good enough to communicate to him the following observation: A young man came to him who had many attacks of epilepsy every day; he thought the constipation might be the cause of his disease. He cured the constipation and the man's trouble too. The man was now on the stage and earned a good deal of money, and after a wretched existence was now enjoying his life. Obviously the relationship between the two phenomena was one of cause and effect. He would refer to another group of phenomena in which constipation played an important rôle. The improvement in tuberculous children when Mr. Lane removed the large bowel had been mentioned. They had also heard of a case which had been sent to the hospital for cancer of the breast, which after short-circuiting became almost normal. He could mention a case from Mr. Lane's clinic of well-developed goitre. He had seen the reduction of the goitre till it became of insignificant proportions after the short-circuiting. Of course, the primary cause remained still, but intoxication through the microbes of the large bowel had had the power to make worse the primary infectious process. He would classify these cases under the name of *intoxication surajoutée*, where the intoxication acted like the symbiosis of the infectious diseases. He spoke shortly about the relation between diarrhœa and constipation. Both, as he had stated in previous papers, were aspects of the same phenomenon. Dr. Jordan had mentioned a case of muco-membranous colitis, in which the radiogram showed a condition of constipation of the upper part of the intestine. How could one explain the presence of both constipation and diarrhœa? The answer was to be found in the fact that toxins in the general circulation acted upon the distal part of the intestine and produced diarrhœa with the constipation. As a matter of fact, this hypothesis was founded on other data. The diarrhœa of tuberculous colitis doubtless in the first stage of its existence was caused through the circulating poison, because only in the second stage was

[4] Ibid., No. 40, 1912

[5] Shown by radiograph, G. Stierlin, Münchener Medicinische Wochenschrift, 36, 1911.

ulceration found. He would not deny that in some cases of colitis they had to deal with specific microbes, as he had pointed out in a summary on the bacteriology of colitis (Soc., Biol., 1912). Another matter of great importance was the bacteriological findings both in constipation and diarrhœa. If one made a Drigalski plate from cases of diarrhœa, not due to specific microbes, one saw that the B. coli of Escherich had almost disappeared, whilst other microbes were present. In constipation this was also true. These facts established a point of resemblance between diseases with opposite symptoms, but most probably due to the same causes. It was also a fact that the goat and the cow had the same anatomical and physiological features of the intestine, but the cow had diarrhœa, whilst the goat was a typically constipated animal. This could not be explained without admitting a common cause of both troubles. He considered briefly the last part of his statement as applied *in vivo*. If constipation was really a disease owing to a special change of the intestinal flora it would be possible to produce such changes experimentally in an animal or in man. He chose a dog because it ate anything and he could make variations in his experiments. The dog normally had hard fæces, and it would be, therefore, unsuitable for experiments under such conditions. In order to overcome this difficulty he put the dog on a vegetarian diet. The fæces became at once very soft. The flora was completely changed and the predominance of Gram-negative microbes became evident. He fed the dog for some time on this diet, and afterwards added 15 to 20 grammes of meat. The external appearance of the fæces changed immediately. Gram-positive microbes were in predominance in the intestinal flora and the fæces became hard, like those in constipated persons. Monkeys showed nearly the same changes. He made further experiments on the subject to show how the food and the intestinal flora had an influence upon the large bowel and on constipation. Guinea-pigs fed with cabbage were typically constipated. If a guinea-pig a day old was given no cabbage at all, but peas and milk, it had always soft fæces and a different intestinal flora. A big dinner, for instance, had often this effect. He would quote two facts in his experience which, he believed, were instructive. He went from Italy to Switzerland and became at once strongly constipated. He came from France over to England and again became constipated. As he stated in his previous paper, this connexion between the remnants of digestion and the intestinal flora made the condition very serious. He called this state "labile condition," which, like unstable equilibrium, might very easily be upset. These experiments point out clearly that: (1) the intestinal flora was an outcome of the kind of food; and (2) the products of the digestion which descended into the cæcum were used by the microbes which produced certain substances inhibiting the stimulation of the intestine. This second point was important because it afforded an explanation of the way in which constipation took place. With 15 grammes of meat the intestinal flora of the dog was changed and the animal became constipated. What was the explanation of this? It had been seen previously that the microbes of the cæcum were the same in normal and constipated man, and that the remnants of the digestion could remain in the cæcum 60 hours and more. They knew, on the other hand, that the microbes in the cæcum were capable of producing different substances with different material. He would quote an example which explained this. If one took bacillus coli, or an allied microbe, and placed it in sugar media, there was a notable production of acid. On the contrary, if the same bacillus coli was placed in the presence of decomposed albumin it produced very offensively-smelling products. Just the same happened in his experiment. A little meat had caused the descent into the cæcum of some decomposed albumin which was utilised by the coli and other organisms, and therefore such substances as were able to lead to intestinal stasis were produced. This was, in his opinion, the primary cause of constipation. A fault in the diet provoked such a state, at first transitory, later chronic, and he would strongly point out that perhaps constipation in the adult was the consequence of mistakes in childhood. If constipation was a disease due to the intestinal flora, they should be able to cure it through the changing of the flora. He would give his results without pretending to have settled the question. The cases he had cured numbered three. (1) A Finnish doctor who was believed to suffer from cancer. He had been able to change his flora and obtain a cure. (2) A Danish girl, aged 23, who suffered severely from constipation. All treatment had done her no good. He was fortunate enough to obtain her stool daily. (3) An English lady, 25 years old, who got well, but was lost sight of. He thanked them for having willingly undergone his experiments. These were his results, but he was sorry not to be a practitioner to prove if his method was of any use or not.

Dr. F. P. BREMNER recorded his personal experience of the value of short-circuiting the colon for severe constipation.[6]

Mr. G. ROWELL said there were some details respecting anæsthesia in subjects of intestinal stasis that might be of interest. Such patients were often in an exceedingly bad general condition of health, and as the operations were often prolonged, and often involved procedures that had a shock-producing tendency, many of these operations were amongst the most formidable in surgery. Two facts commonly characterised anæsthesia in these patients. As one might fairly expect, they were particularly unable to withstand the slightest overdose of an anæsthetic, and, comparing them with persons of similar physique who had no marked symptoms of intestinal stasis, the induction of narcosis to the necessary degree was often unusually difficult. The result was that as regarded the degree of narcosis they had a smaller range of safety than the normal, and the depth of sleep consequently needed to be carefully regulated throughout to attain the best results. The increased difficulty of induction was, no doubt, due to their long-continued poisoning, which apparently slowly but permanently raised the excitability of the reflex centres—precisely as alcohol, tobacco, morphia, and other poisons did when indulged in for long periods. As these patients were never robust this peculiarity only resulted, with the method he used, in a somewhat longer time than might be expected being taken up in inducing anæsthesia. Practically all of those patients that he had had to deal with for some years past had been anæsthetised by the same routine method. After a preliminary injection of morphia and atropine, ether had been given by the open method, with the transfusion of normal saline solution into one or both axillæ from, or in some cases from just before, the beginning of the administration. From three to five pints were usually given, which was accomplished in the first 15 or 20 minutes. It was owing to Mr. Lane's wish that he first used this method for these operations, and so far as the patient's safety was concerned he was confident that no other method was to be compared with it. The morphia appeared to be chiefly of value for its mental effect, and did not shorten the period of induction. The atropine he regarded as of the greatest importance, and he used it whether morphia was given or not. The addition of scopolamine appeared to make the induction easier, but it was rarely necessary. When this method was used the most useful guide to the degree of narcosis existing was the amount of movement which could be produced in the lower jaw. As one's finger was always at the angle this information was constantly to hand. The pupils could, as a rule, be kept small throughout, except in those who were very ill indeed, when the size was a warning to keep the patient as lightly narcotised as could be permitted. The corneal reflex in these patients was always kept present, and often nystagmus also. When once the operation was well begun, a much lighter sleep was permitted, which was increased at certain times as might be necessary. The procedures that demanded a slightly deeper narcosis were when the parietal peritoneum was first opened, when deep structures were pulled upon, when the rectal tube was passed, and for sewing up the wound afterwards. The patient's head should be kept slightly raised. If at any moment it was desired to quickly lessen the depth of narcosis it was lowered a few inches, and providing the circulation was fairly good an increased depth could be quickly obtained by raising the head a few inches while proceeding with the ether. One's aim was to keep each patient at a depth of sleep of such nicety that raising or lowering the head a few inches had an immediate effect. From this it was obvious that patients in the Trendelenburg position had to receive an unnecessary amount of ether, and the administrator was deprived of the useful help of being able to drop or to raise the head a few inches; so that, if the

[6] See THE LANCET, Feb. 24th, 1912, p. 535.

surgeon could do without it, it was in the patient's interest not to employ the Trendelenburg position. There were two specially dangerous types of intestinal stasis patients. The first was the young subject with an acute condition of the complaint, to whom it was by no means difficult to give too much ether when once under. The second type was the man over 50 who looked fairly well but had atheroma. He had actually seen a man of this sort stop breathing and turn pale while quite lightly under open ether. Lowering the head and pressure on the chest, and remarkably little ether afterwards enabled the operation to be performed, but after doing well for ten days or so he died somewhat suddenly, and it was found that he had a calcareous aorta. In three other similar cases he had encountered feebleness of the breathing, which constantly threatened to stop and required careful treatment. All these three cases had obvious atheroma. By the method of anæsthesia described, after-shock was rare and, indeed, only occurred in cases that were desperately ill beforehand. If symptoms of shock threatened, no drug was so useful as pituitary extract; but so rarely was this the case, that though he had constantly been anæsthetising these patients for some years, he had only used it, so far as he could ascertain, in five of them. After-sickness was slight or absent. He had emphasised the danger of anæsthesia in intestinal stasis because it was easy for an inexperienced administrator to give the most extreme cases too much anæsthetic. But by careful employment of the method he had described he had found that the worst cases could be taken through prolonged operations without any great anxiety. For many years past he had been privileged to see Mr. Lane's work on these cases, and he had observed with the keenest interest the evolution of his ideas, as one fact after another came to light. He wished that time permitted him to allude in detail to the various stages by which acquired adhesions, appendicitis, large bowel obstruction, ovarian troubles, sigmoid obstruction, the ileal kink, duodenal obstruction, exophthalmic goitre, mammary degeneration, and other conditions had been brought into the clinical picture as it was presented to them to-day. Every month now appeared to be adding fresh facts, and he felt convinced that they were upon the threshold of such knowledge of this subject as would entitle Mr. Lane's work in this field—by its ultimate effects upon the health of mankind—to rank among the most important discoveries in modern medicine.

LIVERPOOL MEDICAL INSTITUTION.

X Ray Diagnosis of Gall-stone.—Paralysis of Motor Portion of Fifth Nerve.—Vagaries of the Auricles.

A MEETING of this society was held on Dec. 19th, 1912, Dr. J. LLOYD ROBERTS, Vice-President, being in the chair.

Mr. C. THURSTAN HOLLAND read a note on X Ray Diagnosis of Gall-stone, in which he said that until recently it had been considered impossible to obtain a sufficiently distinctive shadow to differentiate gall-stones from stones in the kidney or calcareous glands. But in three recent cases he had been able to recognise shadows as those of gall-stones. It was found that owing to the composition of the stones the greater part was transparent, but they had a crust of lime salts which gave a marked shadow with a transparent centre. Mr. Holland showed on the screen photographs of the cases and of the stones after removal. He demonstrated how the ring of shadow differed from that of a calcareous gland which resembled a blackberry or a renal calculus which gave a clear, sharp, homogeneous shadow.

Dr. T. R. BRADSHAW showed a patient with Paralysis of the Motor Portion of the Fifth Nerve, with complications. The patient was a youth aged 17. The earliest trouble was in February last, when he had some weakness of the right leg. In May he was thrown from his bicycle. He had a slight accident bicycling directly after this. His sight was impaired and he had headache. Next day he had diplopia and difficulty in swallowing, with regurgitation of fluids through the nose. When admitted for treatment in June he had paralysis of the right external pterygoid muscle; when he opened his mouth the lower jaw went over to the right side. The masseter and temporal were weak. There was lateral nystagmus, especially on looking to the right, weakness of the right external rectus causing diplopia, and the right palpebral fissure was narrower than the left. The right leg, which the patient said was weak, showed absence of knee-jerk. The grasp of the right hand was impaired. There was no pain or interference with sensibility. The palate was unaffected. The pupils and discs were normal. In the past six months there had been slight improvement. The nystagmus was no longer apparent and there was no regurgitation through the nose. Dr. Bradshaw could give no satisfactory explanation of the lesion.—Dr. W. B. WARRINGTON thought the lesion might be a vascular lesion in the medulla or pons.—Dr. R. J. M. BUCHANAN suggested an early cerebellar tumour, probably medullary.—Dr. W. PERMEWAN thought it important that a thorough examination should be made of the condition of the laryngeal muscles.—In reply, Dr. BRADSHAW said that it was difficult to correlate the lesions with the condition of the right arm and leg.

Dr. JOHN HAY read a paper on Vagaries of the Auricles. He said that normally the auricles contracted at regular intervals about 70 times per minute, and each systole of the auricles was followed by a systole of the ventricles. In some cases extra systoles arose in some portion of the auricular muscle, causing a premature beat of the heart. In another class of case there was paroxysmal tachycardia; the auricle contracted 200 or more times per minute, each auricular systole being followed by a systole of the ventricle. The stimulus to which the auricle contracted was abnormal in site of origin. The onset and cessation of these contractions were sudden; the rate was uninfluenced by emotion or movement. Dilatation was the result and not the cause of the rapid heart action. In a third class of cases there was a condition of auricular flutter; there was greater acceleration of the auricles; the rate was from 250 to 330 per minute. The stimulus here also arose in an abnormal site. The ventricular rate was 1 : 2, 1 : 3, 1 : 4 of that of the auricles. Dr. Hay related four cases. Three had been under observation over four years. These cases demonstrated the tendency to pass from auricular flutter to a normal contraction through a stage of auricular fibrillation. In some cases the auricular flutter persisted. The cases also showed the remarkable action of digitalis and squills. Auricular fibrillation was one of the commonest and most important causes of cardiac failure. The normal auricular contraction was suddenly replaced by incoordinate and tremulous movements of the auricular muscle. The immediate consequence was frequent and disorderly action of the ventricles, which was followed by dilatation and cardiac failure. This type of case often responded to digitalis. Dr. Hay, in speaking of the administration of digitalis, emphasised the necessity for pushing the drug boldly until the physiological action had been obtained. Vomiting might occur from stomach irritability or from the action of the drug centrally. In the latter case the physiological effect had been obtained and no more could be done by continuing, but in the former case digitalis should be given hypodermically. He said that it was not yet known what the nature of the stimulus was; microscopic changes had been demonstrated in the auricular tissues, and in auricles a similar state had been produced by tying the coronary artery. Also, it was well known that heart block was produced by pressure on the vagus in the neck.—In the discussion which followed Dr. BRADSHAW, Dr. WARRINGTON, Dr. B. SUMNER, Dr. BUCHANAN, Dr. O. T. WILLIAMS, and Dr. J. C. M. GIVEN spoke, and Dr. HAY replied.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

Exhibition of Cases and Specimens.

A CLINICAL meeting of this society was held in the Royal Infirmary on Dec. 18th, 1912, Mr. J. M. COTTERILL, the President, being in the chair.

Mr. HAROLD J. STILES showed a boy, aged 4½ years, 13 months after operation for Extroversion of the Bladder. The exposed mucous membrane was dissected off the wall of the bladder, after which the abdomen was opened in the middle line and both ureters were transplanted very obliquely into the pelvic colon on the Witzel gastrostomy principle. The raw surface of the bladder was allowed to cicatrise over.—The PRESIDENT asked in what proportion of instances it might be hoped to avoid kidney trouble in such

cases.—Mr. STILES replied that though the mortality from such ascending infection of the kidney was very high, yet this new method of treatment might now prevent such infection.

Mr. STILES also showed a case of Epispadias in a girl aged 6 years. The points to be noted in her case were (*a*) absence of the anterior commissure of the vulva; (*b*) the large patulous ureteral orifice; and (*c*) the split clitoris, each half of which was surrounded by a small horseshoe preputial fold continuous with the anterior extremity of the labium minus. The child had suffered from urinary incontinence, diurnal as well as nocturnal, since birth. The treatment consisted in transplantation of the ureters into the pelvic colon. The child now urinated about eight times in the 24 hours per rectum.

Mr. DAVID WALLACE exhibited a case of Neurectomy of the Spinal Accessory Nerve for Spasmodic Wry-neck. The disease commenced suddenly in a man aged 37, less than two months before the operation. The condition had become progressively worse in spite of medical treatment, including large doses of iodide of potassium continued for a fortnight. At the commencement of the latter treatment there was no appearance of wry-neck, but at the end of it Mr. Wallace noticed a slight tendency of the man's head to move towards the right side, as also a slight twitching of the shoulders. No source of irritation could be discovered. The cervical part of the trapezius and the sterno-mastoid muscle of the right side were involved. He was then treated in the medical wards of the Edinburgh Royal Infirmary for three or four weeks, and hyoscine was administered, but in spite of all his condition became worse. The right spinal accessory nerve was attacked and immediate relief to the severe spasms was at once obtained. At present there was merely a slight tendency of the head to remain turned towards the right side. At first the question was asked, Was this a case of malingering? Mr. Wallace had little or no doubt but that it was a genuine case.—Mr. C. W. CATHCART said that he had seen cases where twitching of muscles continued after division of the spinal accessory nerve; after one set of muscles had been put out of action another set took on activity. He though there was a psychological effort on the part of the brain to put into action some other group of muscles, and he thought that treatment by suggestion would be of value in such cases.—Mr. STILES narrated the case of a bank clerk whose spasmodic jerkings were so exaggerated that in trying to get out of a door he was jerked right round, and so had to make his exit backwards.

Mr. WALLACE also showed a case of Trifacial Neuralgia in a man aged 56 years. The spasms of pain were very severe and were not relieved by medical treatment, and no local cause was discovered. Neurectomy of the inferior dental and infra-orbital nerves on the right side, and of the infra-obital nerve on the left side, was performed through external incisions. Injections of alcohol into the nerve trunk had been tried without benefit. When the inferior dental nerve to the extent of about three-quarters of an inch had been twisted out the neuralgia in this position was cured. It recurred, however, in the infra-orbital nerve of the same side; this was operated upon and relief afforded; and finally the infra-orbital nerve of the left side had to be excised on account of the pain. Mr. Wallace thought that the cause might be central on account of twitching on the opposite side.—The PRESIDENT thought that it was just as easy to reach the inferior dental nerve from the interior of the mouth as from the outside, and the former left no scar.—Mr. STILES said he had operated upon two similar cases through the mouth.—Mr. WALLACE, in reply, said that the objection to the oral route was that there was sometimes great difficulty in stopping hæmorrhage, and that the risk of sepsis was present.

Mr. DENIS COTTERILL showed a case of Congenital Dislocation of the Left Shoulder. The case, while it depicted typical symptoms of subspinous dislocation of the humerus, might at first sight be mistaken for a birth paralysis. The movement of the shoulder was fairly good, but was almost entirely scapular.

Dr. GEORGE MACKAY showed (1) (with the PRESIDENT) a Hæmatoma of the Orbit cured by the modified Krönlein's operation; and (2) (with Mr. W. J. STUART) a case of Exenteration of the Orbit for Recurrent Sarcoma.

Mr. J. W. STRUTHERS showed (1) (with Dr. J. S. FRASER), a female, aged 50 years, after removal of a Segment of the Cervical Œsophagus for Squamous-celled Carcinoma (there was a history of difficulty of swallowing extending over a period of about 4 years, clinical examination revealing isolated stricture of the œsophagus behind the larynx; this stricture was exposed at the operation, found to be carcinomatous, and removed); and (2) a female, aged 39 years, after Nephrectomy for Acute Unilateral Suppurative Pyelonephritis. The patient was first seen on the fourth day of her illness, when she was gravely ill, pus was present in the urine, and the right kidney was enlarged and acutely tender. The kidney was exposed, found to be studded with minute abscesses, and removed.

Mr. A. A. SCOT SKIRVING showed two male patients suffering from severe Tertiary Syphilitic Lesions under treatment with neo-salvarsan. Rapid improvement was taking place. In one case mercurial treatment had failed to produce much benefit and had been badly borne. In the other case there was an ulcer on the man's left side 14 inches long, shoe-shaped in character, and two inches in breadth. After the injection of 0·9 gramme neo-salvarsan improvement was manifest on the sixth day, and in 10 days the ulcer was only half an inch broad. He had had other cases of severe lesions which had been cured by mercury, but in none was the cure as rapid as with salvarsan.

Mr. GEORGE CHIENE showed (1) a boy, aged 11, after operation for Unusual Depressed Fracture of a Portion of the Left Parietal Bone, the result of an injury when playing Rugby football; and (2) a patient, aged 35, after operation for Removal of a Stone in the Kidney following an operation five years ago for acute pyonephrosis during the puerperium. Since the first operation the woman had again become pregnant and had again developed pyonephrosis but had recovered without operative interference.

Mr. HENRY WADE exhibited (1) a young adult male showing the Effects of Plastic Surgery in the Repair of an Injury of the Hand caused by an accident in a roller mill; and (2) an adult male showing Results of Plastic Surgery—transplantation of portion of the palmaris longus and cephalic vein to make good a defect after division of the extensor longus pollicis.

Dr. G. LOVELL GULLAND showed (1) a case of Senile Chorea in a woman aged 51 (there were restless movements, delusions and affections of speech; the mental and speech symptoms had lasted for two years and the chorea for four months; there was no hereditary history); and (2) Pulmonary Abscess in a man aged 64. The illness began early in October, 1912, as a cold which later affected the chest. On admission to the wards of the Royal Infirmary there were pneumonic signs at the base of the left lung with signs of excavation, and at present there was a definite abscess cavity which Dr. Gulland intended to leave alone, as his experience of operative interference in such cases was not favourable.

Dr. ROBERT A. FLEMING exhibited two cases: 1. A man, aged 24, showing Acute Toxic Polyneuritis. The patient was a sailor in perfect health until August 6th, 1912. Ten weeks previously he had been engaged for ten days painting the inside of the hold of a ship with naphtha paint. On August 6th he complained of a feeling of numbness and weakness in the legs which later became paralysed. The arms then became similarly affected. Typical muscular hyperæsthesia was present, as was also the reaction of degeneration in the extensor muscles with delayed conduction of sensation. There was no loss of memory or hallucinations. 2. Syringomyelia in a fisherman, aged 30. The lesion occurred in the upper cervical region with involvement of the right cervical sympathetic and spastic paralysis of the legs, most marked on the right side. The disease commenced two years ago with painful whitlows, one on each hand. The small muscles became wasted and marked fibrillary tremors were present. There were curious trophic sores on the arms. Typical loss of pain and temperature sense was observed in both arms. Remarkable vertical nystagmoid movements were seen on directing the eyes either to the right or left.

Dr. FRANCIS D. BOYD showed three cases: 1. Syphilitic Spinal Paralysis in a male. He contracted the disease three and a half years ago and was treated immediately with mercury and iodide. The illness commenced in August, 1912. At present there was loss of power in the left leg; loss of sensibility to touch, temperature, and pain in the

right leg, and this extended up as far as the lower costal margin on the trunk. The reflexes were exaggerated on both sides and Bakinski's sign was present. There was no ataxia or abnormal ocular phenomena. Bladder troubles were marked and the Wassermann reaction was positive. 2. Syphilitic Spinal Paralysis in a man. He contracted the disease four years ago and had been treated both with mercury and salvarsan. On Nov. 20th, 1912, he observed that he was dragging his legs, and later the left leg became powerless. Bladder difficulties became severe. Common sensation remained unaffected in the legs, but the temperature sense was confused. The reflexes were markedly exaggerated in the legs; Babinski's and Romberg's signs were present. There was some ataxia in the arms; the pupil light reflex was sluggish and the Wassermann reaction positive. 3. Purpura Hæmorrhagica in a young man. There was no hæmorrhagic diathesis. He suffered from hæmorrhage from his gums, stomach, and intestine. There were very severe attacks of colic and joint pains were marked. Interstitial hæmorrhagic nephritis was present and the urine showed albumin, blood, and tube casts. The blood exhibited no definite delay in coagulation time; the blood plates were remarkably reduced in number. The blood clot showed some delay in retraction, but this was not nearly so marked as was usually supposed to be.

Dr. JOHN THOMSON exhibited two cases: 1. Oxycephaly (Turmschädel) in a girl aged 14 years. There was typical apical cranial deformity and facies. There were no deformities of the extremities or of other parts, and her intelligence was very good. Hearing was slightly defective. The optic nerves showed slight post-neuritic atrophy. The sight was fairly good for distance and very good for near objects. There were peculiar abnormalities in the ocular movements. In the generality of such cases the intellect was feeble. The optic atrophy was proably due to the defective development of the orbit. Dr. Thomson had seen one case where the eyes were so prominent that they fell outside the lids at times and required replacement. 2. Mild Cretinism showing an extraordinary growth in height and weight as a result of thyroid treatment. When 7¼ years old the patient weighed 16 lb. 2 oz. and measured 30 inches. She doubled her weight in four months and tripled it in 13 months. The first dose of thyroid caused an increase of half a pound in weight. Lately there had been an arrest in growth owing to stopping the thyroid treatment.

Dr. J. S. FOWLER showed a remarkably large Sarcoma of the Liver in a boy aged 9 years.

Dr. EDWIN BRAMWELL showed three cases of Myotonia Atrophica in three brothers, aged 33, 31, and 27 respectively, who were the youngest living members of a family of 12. None of the older members (six brothers and three sisters) nor other relatives appeared to have been affected. One child, born between the two youngest patients, died at the age of 3 weeks, and appeared to have had a spina bifida. The symptoms, which were very similar in all the cases, were first noticed several years previously. The leading features were indistinct articulation, bilateral facial weakness, atrophy of sterno-mastoid muscles, weakness of hand movements (relaxation of grasp was slow and difficult—myotonia—but after being repeated it could be carried out promptly), weakness of the dorsi-flexors of the feet, no pronounced atrophy of the limbs, no hypertrophy, no fibrillary tremors, and diminution of the tendon jerks. This was a very rare condition and resembled the other muscular dystrophies. The myotonic condition affected the hands chiefly, and the mental state of the patients was often not good.

Dr. HARRY RAINY and Mr. J. W. DOWDEN showed a man, aged 47, who had suffered from Hæmorrhages from the Bowel for some weeks. He was melancholic and slightly suicidal. The sigmoidoscope showed that the blood came from the colon. An exploratory operation was performed, and the colon was found to be thickened and covered with small subserous hæmorrhages, though the interior was not examined. Treatment consisted in the injection of an ounce of a 2 per cent. solution of protargol morning and evening, and recovery had been complete.—The PRESIDENT said that appendicostomy was an astonishingly good operation in such cases, and it gave in his experience much better results than lavage of the colon.

Dr. WILLIAM RUSSELL showed a male, aged 36, with a Spastic Condition of his Legs with Anæsthesia and Loss of Control of the Sphincters. He had a history of a similar attack four years previously. Wassermann's test was positive. Under treatment with potassium iodide improvement had taken place.

Dr. BOYD showed specimens from a case of Alkaptonuria. The condition was due to a curious anomaly of protein metabolism which resulted in the presence of homogentisic acid and its oxidised products in the urine. It was a family characteristic: the patient's grandfather, father, and 14 members of his family had been affected. The patient had been rejected for life assurance owing to the presence of copper-reducing substances, mistaken for glucose, in the urine.

Other specimens were exhibited by Dr. A. FERGUS HEWAT and Mr. ALEXANDER MILES.

EDINBURGH OBSTETRICAL SOCIETY.

Eclampsia.

A MEETING of this society was held on Dec. 11th, 1912, Dr. J. HAIG FERGUSON, the President, being in the chair.

Professor Sir J. HALLIDAY CROOM communicated a paper on Pseudo-eclampsia, illustrated by a case which had been sent into his charge at the Edinburgh Royal Maternity Hospital as eclampsia. The patient, who was a secundipara and seven months advanced in pregnancy, had suffered from fits of a severe character for two days, with very marked coma. As there were no abnormal constituents in the urine, the toxæmia of pregnancy was eliminated, and there being no indications from the eye reflexes nor signs of any paralysis, the diagnosis was extremely difficult. The patient died, and as a result of the necropsy a tumour was found of the size of a Tangerine orange lying within half an inch of the anterior end of the left hemisphere and opposite to the superior, middle, and inferior frontal convolutions of the convex surface of the hemisphere, and opposite those parts of the marginal and callosal convolutions which lie above the anterior half of the corpus callosum. The tumour consisted largely of layer upon layer of flattened, dead epithelial cells. Between these were to be found, in the fresh condition, crystals of cholesterin. Essentially the tumour consisted of cholesterin with a supporting stroma of connective tissue upon which it lay. The tumour was therefore a cholesteatoma. Sir Halliday Croom afterwards commented on the comparative rarity of the tumour and its long quiescence in that situation. He described a further case of meningitis which had given rise to pseudo-eclampsia also, thereafter giving a summary of similar cases that were to be found in literature on the subject and discussing the cases in which there was a difficulty in the differential diagnosis of eclampsia.—Dr. D. BERRY HART referred to the point in the history of the case that the onset of the fits occurred after a debauch, beer having been washed out of the patient's stomach after her admission to hospital, and the alcohol would have been considered the immediate cause. If there had been no post-mortem examination it would have been considered a peculiar case of eclampsia. The record was unique and valuable.—Dr. J. W. BALLANTYNE mentioned a case of eclampsia in which the patient made a good recovery and returned home; no albuminuria was present. Soon afterwards she had a fit with resulting right-sided paralysis, quite evidently an apoplectic seizure. In one case, with many fits and no albuminuria, a gumma of the brain was found. The practical point in a doubtful case, even if there were no albumin in the urine, was to treat it as if it were an ordinary case of eclampsia.—Dr. WILLIAM FORDYCE mentioned cases occurring at the Royal Maternity Hospital, where apoplectic conditions had been found post mortem.—Dr. H. O. NICHOLSON spoke of the possibility of fits being uræmic in cases of contracted kidney with urine of a low specific gravity.—Dr. H. S. DAVIDSON stated that in all cases of eclampsia without albuminuria the nervous system should be carefully examined, and suggested the performance of a lumbar puncture.—Dr. M. R. DRENNAN spoke of the advantage to be obtained by ophthalmoscopic examination of the fundus for the presence of optic neuritis.—Dr. J. LAMOND LACKIE, Dr. JAMES YOUNG, and the PRESIDENT also took part in the discussion.—Sir HALLIDAY CROOM, in reply, believed that there could be no true case of eclampsia without albumin in the urine, and he would now teach that cases without albumin had some other cause.

Dr. GEORGE R. LIVINGSTON (Dumfries) read notes on

Five Cases in which the Patients had suffered from Eclampsia. The first patient had fits at full time in her sixth pregnancy; albumin was present in large quantity. Treatment consisted of the administration of half a grain of sulphate of morphia hypodermically. The fits stopped at once and the patient became very comatose. The labour was well advanced and the child was born in 10 minutes, but was very difficult to resuscitate. A fit returned in two hours, and a quarter of a grain of sulphate of morphia injected hypodermically gave an immediate beneficial result. It was some days before the patient recovered her mental condition, but she ultimately did well. The second patient, who was a multipara and in whose case the fits came on during labour, was also treated with morphia hypodermically; she made a good recovery. The third case began with a fit shortly before labour, and was at first treated with bromide and chloral. On the return of the fits a quarter of a grain of morphia was given hypodermically. After the birth of the child the patient was semi-comatose for 24 hours, but made a satisfactory recovery. The fourth patient had eclampsia in four successive pregnancies; the first a miscarriage about the fourth month, the second a miscarriage about the sixth month, the third at seven and a half months, with pulmonary hæmorrhage during a fit. All these were treated with sulphate of morphia. During the fourth pregnancy thyroid extract was administered. The fits occurred at full time and were treated with sulphate of morphia. Chloroform was administered during the labour, but the patient never regained consciousness, and she died a few hours later. In the fifth case, that of a primipara, two injections of a quarter of a grain of sulphate of morphia were given, and the patient was still in fits with no indication of labour. She was removed to hospital. The child was alive, and as the case of the patient seemed hopeless Cæsarean section was performed. The patient was so deeply comatose that the operation was commenced without an anæsthetic. No attempt was made at first to control the hæmorrhage, and after some considerable loss an anæsthetic became necessary. The child (alive) and the placenta were easily delivered. Recovery was uninterrupted. At first the patient was very stupid and dull, but in six weeks she was all right bodily and mentally.—Sir HALLIDAY CROOM referred to the fact that most of these cases were in the country, whereas eclampsia was a disease peculiar to town life; also some of these cases were in multiparous women, yet eclampsia occurred three times more frequently in primiparæ.—Dr. BERRY HART said that the special point was the author's faith in the morphia treatment as one of the best means of controlling the fits.—Dr. BALLANTYNE mentioned that he divided the cases he met with into two groups. The worst cases were sent to hospital and treated with saline infusion, stomach washing, &c., where these could be readily carried out; but in private practice it was very satisfactory to treat them with hypodermic injections of morphia, as this controlled the fits and prevented too violent interference with the risk of septic infection afterwards.—Dr. FORDYCE and Dr. NICHOLSON also made remarks on the paper.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF MEDICINE.

Insular Sclerosis.—The Specific Treatment of Pulmonary Tuberculosis.

A MEETING of this section was held on Dec. 6th, 1912, Dr. J. F. O'CARROLL, the President, being in the chair.

Dr. P. DEMPSEY showed two cases of Insular Sclerosis. 1. A schoolboy, aged 17. His parents, brothers, and sisters were all healthy. First noticed difficulties in his walking last January. Admitted to Mater Hospital on Nov. 7th. The chief positive points in the case were: (1) The age (17 years) of the patient; (2) increased knee-jerks; (3) Romberg's sign; (4) nystagmus. Negative points: (1) Absence of any real paralysis; (2) absence of tremor; (3) no pallor of optic discs. The combination of the spinal symptoms and the nystagmus led him to regard the case as an early one of insular sclerosis. 2. A youth, aged 18. His parents, brothers, and sisters were all healthy. The patient was successfully operated on for radical cure of femoral hernia in June, 1909. Two months later he noticed his left leg getting stiff. The left hip-joint became very painful, and there were frequent cramps in the left calf. The pains gradually lessened and disappeared in a few months, but the stiffness in the leg increased. Some six months later the right leg was attacked by the stiffness, but only to a slight extent. This case differed from the preceding chiefly in the much greater prominence of the spastic symptoms and the absence of ataxia. The nystagmus was also much less marked.—Dr. H. C. DRURY, Dr. F. C. PURSER, and Dr. J. B. COLEMAN discussed the cases, and Dr. DEMPSEY replied.

Dr. W. M. CROFTON, in a paper on Some Specific Methods of Treating Pulmonary Tuberculosis, described the treatment of pulmonary tuberculosis by intravenous injections of iodoform dissolved in ether, giving the technique in detail. In exceptional cases he recommended administration intramuscularly or by the mouth. He thought Szendeffy's formula—viz., iodised peptone, menthol, and radium salt—was less effective, but useful sometimes for its tonic effect, and could be usefully used to supplement tuberculin. Dr. Crofton considered no treatment of pulmonary tuberculosis complete unless a course of tuberculin were given to increase the patient's resistance. He mentioned a new form of tuberculin of his own, made by dissolving tubercle bacilli in benzoyl-chloride. This is given, combined with iodoform, by intramuscular injection. The results so far had been very good. Six cases illustrating the treatment of the disease in various stages were described. One case illustrated the fact that even extensive involvement of both lungs, if recent, can be recovered from.—Dr. MARY STRANGMAN had tried Dr. Crofton's treatment in two of her cases. In the first there were cavities in the left apex, and the right base was the only part of the lungs that could be looked upon as sound. There were loss of appetite, wasting, high temperature, night sweats, and extreme weakness. She was much struck with the improvement within the first few days. The sputum had now much diminished, being about 1½ oz. in the 24 hours; the temperature had fallen, and all the other symptoms had improved. The second case was that of a young girl. After a slow recovery from pneumonia last May she was reduced in weight, had night sweats, loss of appetite, and a few tubercle bacilli were found in the sputum. Iodoform injections were immediately started. For the first three weeks there was no marked improvement. This was attributed to a low blood pressure. Her sputum, from being profuse, had now diminished to less than a drachm in the day. Cough was slight. She still suffered from emphysema, but her case is a very hopeful one.—Dr. G. E. P. MELDON had tried the treatment in four cases, and in each case the temperature came down, the cough lessened, and the patients appeared much better.—Dr. G. E. NESBITT reported one case in which he had tried the treatment and found it did well. Half-grain doses were given in plain solution of ether, and the patient found no bad symptoms, nor did he object to it. He felt quite justified in trying the iodoform injections in further cases.—Dr. T. G. MOORHEAD was impressed with the favourable records brought forward by other speakers, but insisted on one very important point—i.e., in judging any treatment we should have some idea of the history of the disease. He could not help feeling surprised that phthisis was in existence at all, so many remedies had been put forward. Dioradin, he said, had found enthusiastic supporters in France, and its use was continued here until a comparison of treated and untreated patients had been made in England, which showed that dioradin had no influence one way or the other.—Dr. A. R. PARSONS said he would like to know how many cases had been treated with iodoform, so as to ascertain the percentage in which improvement was shown.—Dr. SMITH referred to the fact that half grain was the dose given, and therefore, taking the average weight of the body as 150 lb., this would represent 1 in 2,000,000, which he thought would have very little effect.—Dr. DRURY, Dr. DEMPSEY, Mr. M. R. J. HAYES, and Dr. COLEMAN also discussed the paper.—Dr. CROFTON, replying to the remarks, said that everyone who had used the treatment was pleased with the results. Iodoform had been used in hundreds of cases without any fatal result. The cases reported were not specially picked ones, but were those which would have been considered suitable for sanatorium treatment. With regard to the dioradin treatment he had seen Dr. Bernheim's cases in Paris and was not impressed

with the results; but he considered it of a certain amount of use in cutting short colds. He wanted to emphasise that the combination of iodoform and specific immunisation was the ideal to be aimed at.

DEVON AND EXETER MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held at the Royal Devon and Exeter Hospital on Dec. 13th, 1912, Dr. R. V. Solly, the President, being in the chair.—Dr. F. Roper and Dr. A. L. Candler were elected members of the society.—Dr. A. W. Fortescue Sayres read a paper to open a discussion on Tuberculosis: its Diagnosis and Treatment by Tuberculin. He introduced his subject by reference to the National Insurance Act, and pointed out that to attempt sanatorium treatment, even without provision for the wives and families of consumptives, would necessitate the setting aside of a sum of money "outside the pale of practical politics." In Germany 10 per cent. only could be treated and early suitable cases were selected for sanatoriums. Dr. Sayres then turned to the modes of dissemination of tuberculosis, considering briefly the housing and food-supply of the working classes, the question of heredity, conveyance by contact, and he emphasised the value of the tuberculin test for the early diagnosis of contact cases. He also advocated the segregation of the advanced and dying cases. Turning to treatment by tuberculin, Dr. Sayres reviewed the work that had been carried out in this direction from the time of Koch's earliest essay in 1890 until the present day, special mention being made of the work of Dr. W. Camac Wilkinson both in Australia and in London, where Dr. Sayres had for some months studied his methods. He enumerated the tuberculin tests—viz., the Calmette (now little used even on the continent), the cutaneous von Pirquet, the percutaneous, and the subcutaneous, and he mentioned that the subcutaneous method found most favour with Dr. Wilkinson, who reserved the von Pirquet test for cases where a violent reaction might be expected, as in cases of lupus and young children, whereas he considered the percutaneous method ill adapted for purposes of diagnosis. The subcutaneous test was contra-indicated when (1) diagnosis was already certain; and (2) the temperature was raised, thus obscuring the febrile reaction, and in the face of hæmoptysis, valvular affections of the heart, renal disease, epilepsy, and in hysteria on account of the unreliability of the temperature reaction. A suspicion of miliary tuberculosis would be a contra-indication, as would be also intestinal tuberculosis. The reaction would be inadvisable in convalescence from acute fevers, in diabetes, and in patients showing evidence of arterio-sclerosis. Dr. Sayres then mentioned the various forms of bovine and human tuberculin employed in the treatment of tuberculosis, and stated that P.T.O. (perlsucht tuber. orig.) in the smallest possible dose—0·0005 c.c. was Dr. Wilkinson's inaugural injection—P.T.O. being also the weakest of the bovine preparations; if in three days there was no rise of temperature beyond 99·6° F., the dose was increased, 0·0006. If a marked reaction to 100° occurred, the same dose was repeated, whilst a severer reaction demanded a week's interval of rest before repetition of the initial dose. Then the dose was gradually increased until 1 c.c. of pure P.T.O. was tolerated. P.T. (P.T.O. evaporated to 1/10th) was now commenced and carried through with the same restrictions. Lastly, the patient was started on old tuberculin, and from 0·15 c.c. of the preparation the dose was carried somewhat rapidly to 1 c.c. Discharge from the dispensary then followed provided the dose was tolerated and there was reduction of sputum, increase in weight, and improvement in physical signs, patients being requested to return in three months for examination and retesting. The course did not debar the working man from earning his livelihood. After dwelling briefly on the technique employed at the Camac Wilkinson and Portsmouth Dispensaries, Dr. Sayres discussed the question of suitable or unsuitable cases for tuberculin injections, mentioning that pyrexia, especially where the fever was due to a mixed infection, was a contra-indication, and here he advocated the creosote, iodine, and carbolic acid inhalations as a valuable interim treatment. Pregnancy was not a bar to the treatment, and slight hæmoptysis was not a deterrent to Dr. Wilkinson provided that extreme care was taken. In conclusion, Dr. Sayres stated that much scepticism still existed amongst medical men with regard to the efficacy of tuberculin treatment, but records were year by year tending to break down the barriers of unbelief. Disasters were frequently due to failure to appreciate the potency of this agent in severe cases and by not pushing on to larger doses in cases where toleration was shown. Success could only be expected by those who had been trained in the technique and who had studied the theory of immunisation.—In the discussion which followed the President said that Dr. Sayres had omitted to mention Sir Almroth E. Wright's method by the opsonic index estimation. Much statistical material was still required in a disease where so much recovery occurred under divers varieties of treatment. He himself had had no experience of the German method, and the diagnostic method was not without risk in his opinion. He urged upon the meeting the extreme care necessitated in carrying out tuberculin treatment.—Dr. G. P. D. Hawker, speaking from his own experience, could report good results from the inhalation methods of Dr. Lees. In his opinion a reaction to the tuberculin test did not necessarily indicate active tuberculosis. In Vienna 90 per cent. of children examined reacted to von Pirquet's test, whereas the death-rate from tuberculosis was only 14 per cent. Speaking from his experience at the Exeter Eye Infirmary he had found that the first indication of a reaction to the tuberculin test would be found in a sore throat, which was interesting in that it followed the way of other infections in children. He did not consider Dr. Sayres's statement that tuberculin given to tuberculous women in pregnancy was responsible for the fine physique of the infant was proved in the light of the fact that so commonly the consumptive woman gave birth to fine offspring. He himself had used tuberculin in form of T.R.—Mr. F. W. Langridge acknowledged the importance of early diagnosis in cases of tuberculosis, but regretted the difficulty that was so frequently met with in arriving at a diagnosis before the case became an "open" one.—Dr. Candler said that his experience had been chiefly concerned with the tuberculin treatment of diseased joints and bone and he had not been impressed with the results obtained with the latter. He had seen excellent results on the other hand with injections in cases of tubercular testicle. He considered that isolation as suggested by Dr. Sayres was outside practical means.—Dr. Roper advocated X rays in the diagnosis of early pulmonary tuberculosis. Deficient expansion of the apices would be obvious on the screen, but of especial value would be the shadow obtained in those cases so difficult of diagnosis, where the disease originated at the hilus of the lung. He considered that scepticism in tuberculin treatment was due to unskilful administration. Dr. Sayres had not mentioned the value of auto-inoculation.—Mr. G. L. Thornton mentioned a case recently under his care corresponding to those alluded to by Dr. Roper and where von Pirquet had been negative shortly before diagnosis was clinched by finding of T.B. He also mentioned four cases which he had treated with tuberculin T.R. during the past year; all, either *post* or *propter hoc*, had done well, and two certainly could be justly claimed by the advocates of tuberculin. In alluding to the auto-inoculation treatment he deprecated the too frequent examination of pulmonary cases, the exertion entailed being sufficient to subject the patient to a sudden absorption of toxin.—Dr. J. D. Harris spoke of the high temperature in tubercle as indicative of a mixed infection. He also asked for the percentage of cases dying without treatment by tuberculin. He himself considered that the antiseptic employed in these injections was not a negligible factor.—Mr. Russell Coombe asked for caution in ascribing cure to tuberculin in post-operative surgical cases, and he quoted examples where laparotomy had revealed disseminated tubercle of the peritoneum and an apparently hopeless condition. Such cases had frequently recovered following upon laparotomy and under treatment other than tuberculin.—Dr. Sayres replied.

HUNTERIAN SOCIETY.—A clinical and pathological meeting of this society was held at St. Bartholomew's Hospital on Dec. 11th, 1912, Mr. A. H. Tubby, the President, being in the chair.—The President showed a specimen of Growth removed from the Large Intestine. The patient was a man aged 52 years. Twelve months ago he felt pain in the right side. A lump was found and it was thought to be a moveable kidney. When seen by the President on Nov. 29th, 1911, in the right lumbar region a firm, tense, elastic swelling of the size of a cocoanut could be felt. It was somewhat irregular in outline and moved very little on respiration. It could, however,

be freely picked up between the hands. There had been no vomiting and no constipation, and no signs of obstruction. The diagnosis lay between an enlarged and cystic kidney and a growth of the large intestine. An exploratory operation was decided upon, when it was found to be the latter. As it appeared to offer a fair prospect of removal the patient gave his consent. On Dec. 18th the removal was carried out. An incision was made from the outer edge of the right erector spinæ just below the last rib downwards and forwards to the centre of the iliac region. The ileum was then anastomosed laterally to the left part of the transverse colon; the spot selected in the ileum for the anastomosis was 5 inches from its termination. The ileum was then divided 2 inches on the distal side of the anastomosis and both ends closed with a purse-string suture. The transverse colon on the proximal side of the anastomosis was treated in the same way, and then the mesentery and mesocolon were divided piece by piece between forceps so as to isolate and free the growth. It was then possible to enucleate it completely. The central stump of the mesentery was sutured to the parietal peritoneum. Five enlarged glands, three of them being situated over the abdominal aorta, were dissected out. One week after the operation a fæcal fistula formed, but this closed after three months and the patient is now, 12 months after the operation, entirely well and able to attend to his business. The operation occupied 2¼ hours.—Mr. W. Girling Ball exhibited: 1. A Vault of the Skull, the seat of an osteoplastic flap operation two years before death, which showed a perfect union of the lines of section, with the exception of the trephine holes, which were only covered by the layers of periosteum, and dura. 2. The Brain of the same patient, a girl aged 20 years, who had been the subject of right-sided hemiplegia since birth, complicated by Jacksonian fits. The brain showed a want of development of the whole of the convolutions in front of the Rolandic fissure, whereas behind this they were normally developed. The ventricle on this side (the right) was markedly distended with clear fluid, whereas that on the left side was normally developed. Mr. Ball believed this condition to be one of porencephaly. 3. A case of Carcinoma of the Pylorus, to illustrate the condition of a gastro-enterostomy ten days after the operation.—Dr. W. Langdon Brown showed the following specimens: (1) Some Unusual Vascular Lesions of the Brain; (2) specimens of Renal Infantilism; and (3) Malignant Ulcer of Stomach with communication into the transverse colon.—Dr. A. Westerman showed a case of Pharyngomycosis simulating follicular tonsillitis.—Dr. A. S. Woodwark showed the following specimens: (1) Large Urethral Calculus from a boy aged 12 years; (2) Atheroma (with gigantic plaques) of Aorta; (3) Aortic Thrombosis, with embolus detached; (4) Gall-stones in duodenum and fistulous opening of gall-bladder and a large stone which caused intestinal obstruction; (5) Hydatid Cyst pressing on cystic duct, with gall-stone in gall-bladder; (6) Carbolic Acid Gangrene (after one night's soaking 1–20 carbolic) of Finger; (7) Pipe removed from the rectum; (8) Mediastinal new growth involving the heart wall; (9) Pernicious Anæmia, liver and kidney showing Prussian blue reaction; (10) Spleen of Splenic Anæmia; (11) Bullet removed from the bladder (after 17 years); (12) Œsophageal Pouch; (13) Carcinoma arising in tattoo mark; (14) Old and Recent Cerebral Hæmorrhage; (15) Cystic Teratoma of Ovary; and (16) Sarcoma of the Small Intestine causing Intussusception. Dr. Woodwark also showed a series of Specimens recently added to the museum of St. Bartholomew's Hospital.

BRISTOL MEDICO-CHIRURGICAL SOCIETY. — A meeting of this society was held on Dec. 11th, 1912, Dr. Walter G. Swayne, the President, being in the chair.—Mr. E. W. Hey Groves showed a number of specimens and skiagrams illustrating the operative treatment of both Simple, Comminuted, and Compound Fractures in experimental work. He also demonstrated some of the practical applications of these experimental results, viz.: (1) various intramedullary pegs, including those which could be removed after healing of the fracture; and (2) apparatus for the treatment of compound and comminuted fractures. Illustrative cases in which these methods had been used were shown.—Mr. A. L. Flemming demonstrated the use of Intravenous Anæsthesia with the apparatus of Rood and Schlesinger, and stated that the latter one had the advantage of greater simplicity while giving a more certain drop.—Dr. P. Watson-Williams and Mr. A. J. Wright gave demonstrations of Upper Bronchoscopy and also of the use of the Nasopharyngoscope. With this instrument a case was shown in which the opening of the Eustachian tube was normal and another in which a marked stenosis was evident.—Mr. F. G. Bergin demonstrated the appearances seen in the examination of a normal individual with the Fluorescent Screen after a Bismuth Meal.—Mr. E. H. E. Stack demonstrated the use of the Gastroscope of Hill and Herschell upon an Œsophagus and Stomach removed post mortem.—Dr. J. A. Nixon and Dr. H. W. Bywaters demonstrated the use of the Polariscope in the Estimation of Sugars.—Dr. A. Rendle Short demonstrated a method of Estimating the CO_2 Content of the Blood.—Mr. R. S. S. Statham showed the method of performing a Urinary Acidosis Estimation, and emphasised its importance in such toxic conditions as eclampsia and delayed chloroform poisoning.—Mr. James Taylor showed skiagrams illustrating the condition found at varying times after the administration of a Bismuth Meal in cases of Intestinal Stenosis.—Professor I. Walker Hall and Dr. J. R. Kay-Mouat showed specimens illustrating the Internal Secretions of the Thyroid, Thymus, Pancreas, and other glands; also some naked-eye specimens of Hearts and Lungs with blood-vessels injected and the tissues afterwards made transparent. In addition they demonstrated the action of the Blood of Pregnant Women upon Placental Protein, with the necessary Controls, as a Test for Pregnancy and Eclampsia upon the lines recently suggested by Abderhalden.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.—A meeting of this society was held on Dec. 13th, 1912, Professor E. W. Hope, the President, being in the chair.—Dr. F. E. Wynne read a paper upon the Temperature of School Children in connexion with the Diagnosis of Infectious Disease. He said that the prevention of measles in public elementary schools was one of the most serious problems with which a medical officer of health or school medical officer was faced. The results of school closure, unless in very exceptional circumstances, were admittedly unsatisfactory mainly owing to the fact that all possibility of supervision of the children was lost, and they were left free to infect their families or playmates. Moreover, when the school was closed there was lost the only chance of receiving early notification of the disease, and the services of health visitors and school nurses in preventing the deliberate dissemination of the disease came to an end. Referring to observations which he had made as to the temperature of 1000 school children attending elementary schools, and who were supposed to be in ordinary health, it was found that 25 per cent. had a temperature of 99° F. or over, while a considerable number had subnormal temperatures. Further observations showed that in the great majority of cases the temperature very soon returned to normal. Very few cases of infectious disease were discovered in consequence of the observations. The results, however, indicated such an amount of irritability in the temperature of children of the class dealt with as to justify further investigation. In the work of discovering early cases of tuberculosis among elementary school children Dr. Wynne considered that considerable weight might be attached to the occurrence of even transitory rises of temperature, and temperature observations ought to be a useful method of sorting out cases for the application of the more troublesome methods of tuberculin diagnosis.

THE Royal Dental Hospital, Leicester-square, has received a donation of £400 from Messrs. F. W. Emery and F. Nicholls, executors of the late Captain T. B. Heathorn.

BRISTOL UNIVERSITY: COLSTON SOCIETY.—The fourteenth annual dinner of the University Colston Society will be held on Jan. 14th, at 7 P.M., in the large hall of the University of Bristol. The president is Mr. H. H. Wills. The funds of this society are devoted, under the direction of the University Colston Research Committee (a joint committee of the University and the society), to researches with reference to science, industries, and public health, such researches being carried out at the University of Bristol.

Reviews and Notices of Books.

Gonococcal Infections. By Major C. E. POLLOCK, Royal Army Medical Corps; and Major L. W. HARRISON, Royal Army Medical Corps. London: Henry Frowde, Oxford University Press, and Hodder and Stoughton. 1912. Pp. 222. Price 5*s.* net.

NOT very many years have elapsed since an attack of gonorrhœa was looked upon as a rather trivial affair, for the urethritis was regarded as its only manifestation, except that it was known that occasionally the conjunctiva might be affected, that an epididymitis might follow, and that an arthritis might also be associated. Our present knowledge has invested the gonococcus with much more importance—gonorrhœa may be said to rival syphilis in the number, variety, and seriousness of its manifestations, complications, and sequelæ. It is certain that the identification of the gonococcus by Neisser exerted an enormous influence on the study of the disease, for it enabled the surgeon to recognise it much more early in doubtful cases than was formerly possible. Even when we have definitely learned that some affection is due to the gonococcus, treatment is by no means easy, for though we may exterminate the gonococcus with ease so long as it is confined to the surface of a mucous membrane, as soon as it has penetrated into the epithelium it is beyond our reach. The recognition of the vast importance of the gonococcal infections has rendered it necessary that medical men should have a fuller knowledge, and this book should have a good influence both on the treatment and on the prevention of the disease.

The work contains a full account of the gonococcus, the methods of staining and cultivating it, and the preparation of vaccines. Gonococcal infection of the urethra and its local extensions, both in the male and in the female, with the various complications, are described. Gonococcal ophthalmia is also considered, and the authors point out that this disease may be primary and may occur in patients without any urethritis. There is a certain amount of risk that the surgeon or nurse who syringes the eyes of a patient suffering from gonorrhœal conjunctivitis may become infected owing to some of the pus being splashed into the unprotected eye, therefore the authors advise that goggles should be worn by the surgeon or nurse while doing the syringing.

An important chapter is that dealing with the subject of vulvo-vaginitis in little girls. The disease is more common than is often thought, and according to Hamilton's statistics 4 per cent. of the children admitted to the Babies' Hospital, New York, were found to be suffering from gonorrhœal vulvo-vaginitis, and it may occur in an epidemic form in children's hospitals. It should be made a rule in all hospitals that every child admitted for any disease whatever should be carefully examined, and if there is any sign of a vaginal discharge the child should not be placed in the same ward as other children, but should be kept in an observation ward under the care of separate nurses. The greatest care needs to be taken with regard to the towels and linen used in the ward. Even the bath requires to be disinfected after an infected child has bathed in it.

The last chapter deals with the subject of gonococcal septicæmia, a condition which even yet has not generally been estimated at its full import. The less serious manifestations, such as arthritis and endocarditis, have long been known, and we are still learning more of these obscure chronic inflammatory affections; there may, however, be a true general septicæmia caused by the gonococcus, and though only a few cases have been recorded, it is not improbable that it is more common than has been thought. In an appendix to a thoroughly good little book are put together formulæ for injections and stains.

Manual of Operative Surgery. By JOHN FAIRBAIRN BINNIE, A.M., C.M. Aberd., Surgeon to the General Hospital, Kansas City, Mo. Fifth edition, revised and enlarged. With 1365 illustrations, a number of which are printed in colours. London: H. K. Lewis. 1912. Pp. 1153. Price 30*s.* net.

WE think that Mr. Binnie has acted wisely in issuing this new edition of his work in one volume in place of two, for it is much more convenient for the reader to have the whole work between two covers than to have to refer first to one volume and then to another. In speaking of earlier issues we have expressed in the highest terms our appreciation both of the design and of the execution of this work, and we could only repeat our former words if we had to express our opinion of this issue. The whole scheme of the book is to give the surgeon an account of the various methods of operating for different conditions; and these descriptions are given in the briefest form possible, so as to provide the maximum of information in the minimum of space. For the most part only those procedures which are now employed are described, although occasionally we find operations explained which are out of date.

The illustrations are very numerous and good. Altogether we can confidently recommend the book as of the greatest value; the surgeon who desires, as a rule, to see almost at a glance all that is advised in the way of operation for the treatment of any condition will find here what he wants. We know no other book written on the same lines.

Schutzfermente des tierischen Organismus. Ein Beitrag zur Kenntnis der Abwehrmassregeln des tierischen Organismus gegen körper-, blut- und zellfremde Stoffe. Von EMIL ABDERHALDEN, Direktor des Physiologischen Institutes der Universität zu Halle a.S. Mit 8 Textfiguren. Berlin: Julius Springer. 1912. Pp. 110. Price, paper, 3.20 marks; bound, 3.80 marks.

IN the preface there is an extraordinary parade of "Ichs," but in spite of this the work is both interesting and suggestive. The author proceeds from the assumption that the cells of the body after the introduction into them of foreign substances do not react by processes which are completely new and alien to their usual mode of action. Rather does he seek to show that the whole question of the reactions associated with immunity is one which is in close relation to the normal actions of the cells. He sets himself the task to determine if the blood plasma normally contains ferments, and whether after the introduction of foreign material, ferments not normally present in the plasma could be detected. As a matter of fact, after the direct introduction of such foreign substances into the blood, ferments did appear in the plasma and destroyed the foreign material introduced, and thus robbed it of its specific character. This fact the author links up with the results of immunity and anaphylaxy. In pregnancy the blood contains substances or ferments which are supplied to it from the chorionic villi, and the author states that this makes possible the detection of pregnancy.

The whole text is written without being broken up into chapters, which makes the task of reading it rather arduous. There is no indication in the text where one part of the subject ends and the next begins. We feel sure that the author in his exposition would gain immensely by subdividing the text and inserting proper headings. This would add but a page or two to the text, and would be a great gain to the reader, especially an English reader. He deals with the general protective arrangements in cells, such as the cell wall and its permeable or semi-permeable qualities

while to its ferments he attributes a "very great rôle." He then passes on to the division of labour amongst the cells of a composite organism, which brings him to the question of the importance of milk for the suckling and the whole question as to the formation of its organic constituents. The object of digestion is to prevent the introduction into the organism of products which are not adapted either for the blood itself or for the cells of the body. The methods by which the body protects itself against the invasion of organisms of all kinds are briefly considered. The ferments present in cells are described, and then the author cites the experiments of himself and his co-workers on "protective ferments." He shows that the direct introduction into the blood of proteins and their nearest derivatives not normally represented in the blood causes the appearance of ferments in the plasma. The same applies to carbohydrates, fats, nucleo-proteins, and nucleins. Full details are given, for which we must refer to the original (pp. 48–73). The origin of these protective ferments is suggested. Probably the leucocytes play a very important rôle. The removal of the fibrinous exudate in the alveoli of the lungs in pneumonia is due to the ferments of the entangled or invading leucocytes.

Gynæcologists and biologists alike should interest themselves in what the author calls "the biological diagnosis of pregnancy" already alluded to, it being premised that Professor Abderhalden is a good example of one who cultivates what Tyndall called the "scientific use of the imagination." The literature cited runs to 10 pages, but there is no index.

Handbook of Diseases of the Ear. By RICHARD LAKE, F.R.C.S. Eng. Fourth edition. With 77 illustrations and 4 coloured plates. London: Baillière, Tindall, and Cox. 1912. Pp. xiii.–287. Price 7*s.* 6*d.* net.

WE welcome the fourth edition of this useful little handbook. Its appearance so soon after the third edition testifies to its popularity. Although only two years have elapsed a considerable part of the text has been revised and many additions have been made, increasing the size of the volume by 40 pages. The four coloured plates are now put together at the beginning of the book.

Chapter I. has been largely rewritten and two new plates have been added. Fig. 16 is a useful guide to the surgical anatomy of the semicircular canals. The material previously comprised in Chapter III. has now been split up into three chapters. This is a much better arrangement, and Chapter IV., on the estimation of the acuteness of hearing, has been largely rewritten and new matter added under the headings of fatigue period, anomalous results in tuning-fork investigations, and on education and re-education. Mr. Lake has most carefully elaborated Rinne's test, and the classification which he makes and calls the "proportional test" is worth the careful consideration of all. This chapter was published in the columns of THE LANCET originally. At the end of Chapter IX., on chronic non-suppurative diseases of the middle ear, is a paragraph on "fixation of the malleus." Here the reader has clearly impressed on him the danger of repeated inflation by Valsalva's method, especially in the presence of nasal obstruction. It is pointed out how not only will there be caused a stretching and thinning of the posterior part of the membrana tympani, but with each inflation a slight concussion of the labyrinth. In the following chapter on suppurative diseases the author advocates the treatment of cholesteatoma with ether, and describes the method of its application.

Under the heading of operations the choice of instruments is discussed, and stress is laid on the preference that should be given to the hand-gouge over the use of chisel and mallet, as the use of the latter apart from the concussion that may be caused adds materially to the shock. The hand cutting-gouges devised some years ago by Mr. Lake have proved in his hands most useful. In the part of this chapter dealing with operations on the labyrinth is a very excellent and useful new plate (Fig. 71), and a few of the author's special instruments for this work are also depicted. It will be remembered that Mr. Lake was a pioneer in operating on the labyrinth for very severe vertigo. To Chapter XV., on diseases of the internal ear, a most important short section has been added on aural vertigo. Here all the various forms of vertigo associated with aural disease are briefly discussed and their symptoms and treatment given.

We have confined ourselves to noticing the points wherein this volume differs from the previous edition. It remains to say that this little book contains an immense amount of information in a small space; indeed, it is in our opinion the best book of its size on its subject.

Nephritis, an Experimental and Critical Study of its Nature, Cause, and the Principles of its Relief. By Dr. MARTIN H. FISCHER, Eichberg Professor of Physiology in the University of Cincinnati. London: Chapman and Hall. New York: John Wiley and Sons. 1912. Pp. 203. Price $2.50 net.

Die Nephritis. Von Dr. MARTIN H. FISCHER. Mit Authorisation des Verfassers in deutscher Sprache herausgegeben von HANS HANDOVSKY, Wien, und WOLFG. OSTWALD, Privatdozent an der Universität Leipzig. Dresden: Theodor Steinkopff. 1912. Pp. 156. Price, paper, 5 marks; bound, 6 marks.

WE can best summarise the general conclusions arrived at by Professor Fischer by giving in his own words the thesis he starts out to prove, as stated on the second page of his book. "All the changes that characterise nephritis are due to a common cause, the abnormal production or accumulation of acid in the cells of the kidney. To the action of this acid on the colloidal structures that make up the kidney are due the albuminuria, the specific morphological changes noted in the kidneys, the associated production of casts, the quantitative variations in the amount of urine secreted, the quantitative variations in the amounts of dissolved substances secreted."

The author then considers the production of albuminuria, and endeavours to prove that an abnormal production or accumulation of acid occurs in every case of albuminuria. After briefly outlining some of the newer views in regard to the chemistry and physics of colloids, he maintains that "albuminuria results whenever conditions are offered in the body which permit the solid colloidal membrane that separates the blood from the urine to go into solution in the urine." It will be seen that Professor Fischer's views are strikingly heterodox, and it must be confessed that the evidence he brings forward in support is anything but convincing. Some of his statements are, indeed, not supported by proof, and are in direct opposition to well-established observations, as, for example, his dictum that albuminuria is the constant accompaniment of salt starvation.

Having disposed of albuminuria, the author deals with morphological changes in the kidney. He enjoins us to free our minds from erroneous conclusions to which the temptations of elaborate fixing and staining methods and high power microscopes have led us. He affirms that the cloudy swelling, the appearance of blood corpuscles extravascularly, and the evidences of a falling apart of the kidney as a whole and of a disintegration of the individual cells are the essential morphological changes in nephritis. Because he has been able by means of acid to produce in surviving kidney tissue changes analogous to cloudy swelling, and to produce artificial casts by means of acid, he concludes that

these changes in nephritis, like the albuminuria, are also due to the action of acid in the kidney. The disturbances in secretion in nephritis are also held to be due to an abnormal acid content in the kidney. For the purpose of his thesis Professor Fischer will not admit that chronic interstitial nephritis should be regarded as a form of nephritis. For him it is an atrophy of the kidney, and the parenchyma cells are normal. He then develops a "colloidal" theory of the excretion of the urinary water by the renal cells, and attributes the diminished excretion of water in nephritis to abnormal production or accumulation of acid.

The theories put forward are duly applied to the question of treatment. It is given as a general direction that every condition which favours the formation or accumulation of acid in the kidney should be avoided as far as possible. The entire purpose of the treatment is briefly stated to be the giving of alkali in order to neutralise the acids present, the introduction of salt to aid in the reduction of the œdema of the kidney and other organs, and the administration of water in large doses at regular intervals. The salts used are sodium chloride and sodium carbonate, and they are given in water either by the mouth or rectum. Numerous experiments are described and a few cases are briefly reported, but they are not of such a character as to convince us of the correctness of Professor Fischer's views or of the efficacy of his treatment.

A Manual of Clinical Chemistry, Microscopy, and Bacteriology. By Dr. M. KLOPSTOCK and Dr. A. KOWARSKY, of Berlin. Only authorised translation from the last German edition, thoroughly revised and enlarged. London: Rebman, Limited. 1912. Pp. 371. Price 12*s.* 6*d.* net.

THE second edition of this "Manual of Clinical Chemistry, Microscopy, and Bacteriology," translated into English from the last German edition, brings the book well up to date, and that essential to all practical books, an index has been added. Although enlarged beyond its former scope the book does not in any way pretend to be a reference work for those thoroughly conversant with clinical laboratory methods, but rather appeals to students and practitioners who wish themselves to perform or to understand the increasing number of tests appertaining to clinical diagnosis and treatment.

The first three chapters deal with the bacteriological examination of secretions from the mouth, pharynx, nose, and conjunctiva, including a full description of the bacteriological diagnosis of diphtheria. Chapter IV. is devoted to the examination of the sputum—macroscopic, microscopic, and bacteriological. Chapter V. deals with the qualitative and quantitative examination of the gastric contents, the only tests given being those most suitable for each purpose in the experience of the authors. In Chapter VI. are described the methods of examining the fæces, and of special value are the directions given for the detection of typhoid bacilli. The examination of the urine—chemical, microscopical, and bacteriological—is fully dealt with in the next chapter, whilst Chapter VIII. deals succinctly with the examination of urethral and prostatic secretions. The examination of the blood is detailed in Chapter IX., and is brought up to date by a description of the original Wassermann reaction. Further chapters are devoted to the examination of fluids obtained by puncture and of diseases of the skin, whilst the last chapter is especially useful in that it contains the formulæ of the commonly used stains and a detailed account of the constituents and methods of preparation of the most useful media for the cultivation of bacteria.

The authors are moderate throughout in the expression of their opinions, careful in describing essential details of technique, and as brief as accuracy allows. The book is illustrated with plates and drawings, the printing is clear, and the general arrangement of the text is good. The translation has been adequately performed, though in this country the uninitiated may be puzzled by some of the terms used—e.g., "Klatschpreparata." We recommend the book to those who require a concise guide to modern clinical laboratory methods.

LIBRARY TABLE.

Robert Koch: Eine biographische Studie. Von Dr. KARL WEZEL, Stabsarzt an der Kaiser Wilhems-Akademie für das Militärärztliche Bildungswesen. Berlin: August Hirschwald. 1912. Pp. 148. Price 3.60 marks.—Any account of the life of a great man of science is necessarily for the most part an account of his work, and this is true of the book before us. After a brief introductory section dealing with Koch's position as a pioneer in bacteriology, we have a chapter devoted to his school days, in which are noted his early capacity for hard work, his tendency towards scientific pursuits, and a certain reserve of character which distinguished him throughout life. The following 16 chapters deal with his work in chronological order—a subject which was sufficiently treated in our recent review of Koch's "Collected Works." The views here expressed are naturally appreciative rather than critical. The most interesting chapter in the book is perhaps the eighteenth, which sketches the personal characteristics of the great observer. A man of middle height, with broad shoulders, a stern face, lighting up into a pleasant smile, a clear voice and direct, lucid style, such are the features presented to us. Pleasant examples are given of his affectionate relations with his little daughter, and some of his letters to her are quoted at length. A firm friend, a good hater at times, an unsparing worker, a fearless, tireless traveller, Koch was at once an instance of that side of genius which has been described as an infinite capacity for taking pains, as well as an example of the intuitive penetration which is needed to solve the riddles of nature. His strenuous life hastened in all probability his death from a cardiac affection at the age of 67. He left behind him a band of distinguished workers who had been his students and helpers, the names of many of whom are collected in the nineteenth chapter of this work. The book is well written and well printed, and forms a useful and readable memoir.

Annual Report of the Veterinary Pathologist for the East African Protectorate (1909–10 and 1910–11).—Pathologists have a fine field for work in Africa equally in the diseases of animals and in those of man; in East Africa, until the past few years, the field has practically been untrodden. The report of Mr. Eustace Montgomery, M.R.C.V.S., is interesting reading, as showing what work is being done in veterinary pathology in East Africa and how much modern science and modern serum treatment are being applied in the cure and prevention of diseases of animals. Owing chiefly to the fact that so much of the wealth of Africa depends upon its herds and its agriculture, the laboratories which have been founded there are amongst the best and most completely equipped in the world. Probably the most complete is that controlled by Dr. Arnold Theiler in the Transvaal, but East Africa is determined not to be behind, and the laboratory at Nairobi, although only recently established, is already in full swing, preventive sera are being made, and original investigations conducted. Horse sickness, rinderpest, East Coast fever, variola, coccidiosis of cattle, and swine fever are apparently very prevalent, and it is interesting to note in connexion with the last disease that the conclusion of certain experiments proved that there were differences between the South African variety and the English strain, as pigs which

were proved immune to the infection of English swine fever died when inoculated with the South African variety. A new disease of sheep, for the moment designated the "Nairobi sheep disease," is described. All who are interested in the diseases of stock in Africa will find Mr. Montgomery's report worth perusal.

Medicus. Guide Annuaire des Étudiants et des Praticiens (Médecine, Chirurgie, Odontologie, Pharmacie). 40e année. 1912–13. Paris: Aimé Rouzaud. Pp. 1720. Price 5 francs. —This useful work of reference contains a valuable information relative to French medical men and the practice of medicine in France. Part I. deals with the Ministry of Public Instruction, the University of Paris, the Teaching of Medicine and Pharmacy, the Faculty of Medicine of Paris, Military, Naval, and Colonial Medicine, Dentistry, the Assistance Publique of Paris, the Institute of Colonial Medicine, Midwives, Lunatic Asylums, the Pasteur Institute and Hospital, Free Instruction, Scientific Societies, and Students' Societies. Part II. comprises an account of the Provincial and Colonial Faculties of Medicine, and gives a list of the principal French and Foreign Medical Journals. Part III. lists the principal Foreign Medical Faculties and Schools throughout the world. Part IV. constitutes a Dictionary of Legal Medicine. Part V. comprises the regulations concerning the Practice of Medicine, Pharmacy, and Public Health in France and the Colonies, Industrial Accidents, Benevolent Societies, Medical Syndicates, Mineral Water Stations in France, the Colonies, and Abroad, Sanatoriums and Resthouses, and Medical Institutions. Part VI. is a Directory, alphabetical and local, of Medical Men, Stomatologists, Officers of Health, Dentists, and Pharmacists in Paris, the Departments, and the Colonies. In regard to this last, we think that the custom of giving only the surnames, without initials even, materially detracts from the usefulness of the book as a directory, particularly in relation to the identification of medical men. For instance, there are listed among provincial practitioners no less than 30 Laurents, of whom only 10 have any distinguishing name or initial given. This year are added illustrations of the principal French hospitals and Faculties. A more careful revision of the data concerning foreign medical schools is desirable, and there are not a few omissions of more or less importance, e.g., the National University of Ireland, with its constituent Colleges of Dublin, Cork, and Galway, the Queen's University of Belfast, and several schools of a high order in the United States.

JOURNALS AND MAGAZINES.

Annals of Tropical Medicine and Parasitology. Series T. M., Vol. VI., No. 3, B.—This is a very interesting number in view of the many valuable papers contained in it. The first contribution is supplied jointly by Dr. K. S. Wise and Dr. E. P. Minett, respectively Government bacteriologist and assistant Government bacteriologist to the colony of British Guiana, and in it they give the result of their experiments with crude carbolic acid as a larvicide. The local circumstances of the colony are such as to make the choice of a suitable larvicide difficult, but for small pools it was found that at a dilution of 1 in 20,000 effective destruction of the larvæ could be secured with the crude acid.—"The Morphology of Trypanosoma Gambiense and T. Rhodesiense in Cultures, and a Comparison with the Developmental Forms described in Glossina Palpalis," is the title of a joint paper by Dr. John Gordon Thomson and Lieutenant J. A. Sinton, I.M.S. This investigation, it appears, was undertaken at the suggestion of Sir Ronald Ross. It was found that both of these trypanosomes were capable of being cultivated on artificial media, but T. rhodesiense was more difficult to cultivate than T. gambiense; the life-history of both trypanosomes in culture tubes is similar to that which occurs in the gut of the insect host. The cultures quickly lose their infectivity, and intraperitoneal injections of them into rats, after the third day, have failed to cause infection. Cultures of T. rhodesiense seem to differ from those of T. gambiense; in the former typical posterior nuclear forms, such as have been described by Stephens and Fantham, are relatively common, whereas in cultures of the latter they are of very rare occurrence. Although the so-called "male" and "female" forms were present in the cultures no definite evidence was obtained of a sexual cycle. This valuable paper is illustrated by three excellent plates.—Captain W. S. Patton, I.M.S., furnishes an article on Spirochæta Ctenocephali (spec. nov.) parasitic in the Indian dog-flea, Ctenocephalus felis; he also, in conjunction with Major T. H. Symons, I.M.S., supplies a report upon an outbreak of canine paraplasmosis due to Paraplasma gibsoni (spec. nov. Patton) among the hounds of the Madras hunt; these experts also add some observations on the treatment of the disease by salvarsan.—Lieutenant J. A. Sinton, I.M.S., describes some attempts which he made at the cultivation of the malarial parasite by Bass's method; the same observer also contributes a short article on Urriola's test for malarial infection.—In continuation of a previous paper Dr. Charles Singer gives a further series of notes on some early references to tropical medicine, including André Thevet's views in 1558 upon the identity of yaws and syphilis, certain very early references to dracontiasis, the guinea-worm disease (with illustrations), and the measures taken in Paris in 1533 to prevent the spread of plague (with plate).—Dr. H. O. Fantham, D.Sc., furnishes a short note upon the Occurrence and Distribution of Herpetomonas Pediculi, a parasite which is known now to occur in human body lice and in head lice in England, and in body lice in India and Tunisia.—The last contribution is supplied by Dr. A. Kinghorn and Dr. Warrington Yorke in the form of the fifth interim report of the Luangwa Valley Sleeping Sickness Commission of the British South Africa Company, in which they discuss the influence of meteorological conditions on the development of T. rhodesiense in the Glossina morsitans fly. These observers found that the developmental cycle of T. rhodesiense in G. morsitans is to a marked extent influenced by the temperature to which the flies are subjected. High temperatures (75° to 85° F.) favour the development of the parasite, while low temperatures (60° to 70° F.) are unfavourable to it. In a postscript to the report it is stated that some experiments made later show that while the first part of the developmental cycle can occur at a comparatively low temperature, the higher temperature mentioned above is necessary for the completion of the cycle.

Quarterly Journal of Experimental Physiology. Vol. V., No. 4. Edited by E. A. SCHÄFER, F. GOTCH, W. D. HALLIBURTON, C. S. SHERRINGTON, E. H. STARLING, and A. D. WALLER. London: Charles Griffin and Co., Limited. 1912. Pp. 309–411. Price 6s., including contents of Vol. V. —Under the title of "The Vascularity of the Liver" Russell Burton-Opitz, of Columbia University, continues his contributions on this subject (VIII., IX., and X.). The first of the series deals with the Influence of Adrenalin (1 in 10,000 solution) on the Arterial Inflow. This drug was used to give additional evidence that the arterial radicles of the liver are equipped with a very efficient vasomotor mechanism. The adrenalin was introduced by two methods: one by the veins and the other by the circuit of the hepatic artery. The second contribution deals with the Influence of Inhalations of Amyl Nitrite upon the Arterial Inflow. The arterial flow through the liver decreases markedly as

soon as amyl nitrite has exerted its characteristic effect upon the pressures. The greatest reduction in flow does not appear until the lowest pressure value has been attained. The local effect of flow through the hepatic artery must be attributed wholly to the general and extensive relaxation of the vascular channels produced by amyl nitrite. Having determined the marked influence of vasomotor nerves on the blood flow through the hepatic artery, the third of the present contributions deals with the Influence of Adrenalin upon the Venous Inflow—i.e., the existence of a vasomotor mechanism in the hepatic terminals of the portal vein. The author concludes from his somewhat complex experiments that the liver "possesses two separate motor mechanisms, one of which is situated in the terminals of the hepatic artery, and the other in the radicles of the portal vein." There are several well-printed tracings and numerous protocols.—A short paper by J. McCall, an Electrical Attachment for Blood Pressure Recording, is in the nature of a useful class demonstration experiment.—W. Burridge (Oxford) has made important contributions on the rôle of inorganic salts in muscle. The transition to Researches on the Perfused Heart, the Effects of Inorganic Salts, was quite natural. "Inorganic salts," however, is a comprehensive title; the author's experiments are directly concerned with a limited aspect of the question—viz., the direct action of potassium salts on Rana temporaria. It is suggested that this method of investigation leads also to information on the functions of calcium. Apart from the author's object, his perfusion experiments show conclusively the enormous capacity for living of the heart of a frog, even in the hot weather of July, 1911. These researches touch the problem of "heart-block." The paper is very worthy of study, especially by pharmacologists and physiologists who interest themselves in the inorganic factors which are so essential for the maintenance of the heart beat.—Tolerance to Nicotine, by W. E. Dixon and W. E. Lee (Cambridge). The authors start with the statement "that men can acquire some degree of tolerance to tobacco smoking is a fact established beyond dispute." They regard the toxic effects of smoking as almost entirely due to the nicotine present in the smoke. The authors' experiments were made on rabbits. The nicotine used was dissolved in a 0·5 or 1 per cent. solution in normal saline, which was injected subcutaneously or intravenously. The experiments show that a certain degree of tolerance can be obtained to nicotine, and that this is brought about by the destruction of the alkaloid. "Yet there is some evidence suggesting that the nicotine is taken up specifically by some tissues."—The Destruction of Alkaloids by the Body Tissues, by A. J. Clark (King's College, London), takes one in thought to Staz, of Brussels, and to Heger's perfusion experiments in the late seventies of last century. The focus of destruction is the liver, be it the frog or rabbit, as regards atropine. This power persists when all living cells are destroyed, and is due to a soluble body, resembling a ferment in its action. None of the tissues investigated in the cat, the rat, and the dog have any power to destroy atropine. The minimum lethal dose per kilogramme of atropine, given subcutaneously, is highest in those animals whose livers can destroy atropine.—The last paper is by H. O. Feiss (Western Reserve University) on the Effect of Nerve Fusion on the Patterns of Nerves Containing Degenerated Fibres. By the term "nerve fusion" the author means "tying absorbable ligatures about the nerve or nerves the patterns of which are to be distorted."

University of Toronto Medical Bulletin.—The first issue of this new publication, which is devoted to clinical and laboratory work carried on by members of the University of Toronto medical staff in the city hospitals, is somewhat belated in reaching us, being dated July, 1912. It is a periodical apparently that aims at a high standard. Dr. Robert D. Rudolf reports an unusual case of neuritis of the external popliteal nerve following typhoid fever. Dr. C. S. McVicar, Dr. Gordon Bates, and Dr. George S. Strathy describe the method of laboratory testing in the diagnosis of general paresis employed in the Toronto Hospital for the Insane, and deduce the conclusions that an increased cell count is nearly always present in paresis though it may also be found in Korsakow's disease and in various meningeal conditions; that general paresis without a positive Wassermann in both spinal fluid and blood serum is rare; that globulin can be detected in the spinal fluid of nearly all paretics, the Noguchi and the ammonium sulphate tests being of equal delicacy; and that a positive Wassermann reaction may be obtained in the spinal fluid of patients who have had syphilis and who cannot be diagnosed clinically as cases of general paresis. Dr. W. B. Thistle reports two cases of recurrent pernicious anæmia which were simultaneously treated with beneficial results at the general hospital. The method adopted was deep injections of 0·3 gramme doses of arseno-benzol into the gluteal region. Dr. Goldwin W. Howland discusses juvenile parasyphilitic affections. Dr. Graham Chambers, Dr. Herbert A. Bruce, and Dr. John J. Mackenzie give respectively the medical, surgical, and pathological reports in a case of acromegaly operated on by Mr. Bruce. Mr. W. J. O. Malloch describes a dislocation of the patella which was rotated about a horizontal axis; and Dr. A. Primrose a method of preserving the finger in a case of enchondroma of a phalanx complicated by fracture. Other articles are on treatment of fracture of the upper extremity and shaft of the humerus, by Dr. W. E. Gallie; a case of fracture of tibia and fibula treated by plaster splints with subsequent plating, by Dr. Stanley Ryerson; carcinoma arising from a lupus scar, by Dr. Graham Chambers; typhoid fever complicated by epididymitis and polyarthritis, by Dr. Graham Chambers and Dr. C. E. Cooper Cole; and notes on a case of regularly recurring ventricular extra-systole, by Mr. George W. Rees, M.R.C.P. Lond.

Reports and Analytical Records FROM THE LANCET LABORATORY.

(1) TABLOID EMETINE HYDROCHLORIDE KERATIN COATED; (2) THYROID GLAND; (3) TUBERCULIN BOUILLON FILTRATE, HUMAN AND BOVINE.

(BURROUGHS, WELLCOME, AND CO., SNOW HILL BUILDINGS, LONDON, E.C.)

1. THE advantage of enclosing the active constituent of ipecacuanha in a keratin coating is obvious, since not only is the emetine introduced into the dysenteric bowel without change, but any disturbing effect it may have upon the gastric organ is avoided. The emetine is present in the form of hydrochloride. This successful treatment of dysentery by the derivatives of ipecacuanha is well known, and is an illustration of the fruitful results which may accrue by a study of the active constituents of time-honoured drugs. 2. In the two new tabloids of thyroid gland the quantity of organic substance has been reduced to a 1/4th and 1/10th grain respectively, in view of the statement of certain authorities that these small doses have given just as good results as larger doses. The thyroid extract employed is standardised by chemical means, and the guarantee is that it contains not less than 0·2 per cent. of organically combined iodine. According to our own examination we found 0·3 per cent. of iodine in the gland contained in the tabloid. 3. Attention may be drawn to two new preparations of tuberculin, human and bovine. Each is issued in hermetically sealed phials of 1 c.c., both undiluted and in dilutions representing from 0·0001 c.c. to

0·1 c.c. The undiluted preparations are convenient to those who prefer to make their own dilutions. These weak tuberculins are employed to initiate a course of treatment "according to the intensive system of dosage."

NEU-SELTERS TABLE WATER.

(THE NEU-SELTERS SPRING COMPANY, LIMITED, 21, IRONMONGER-LANE, LONDON, E.C.)

This water is drawn from the well-known mineral spring district, Selters in Nassau. It belongs to the class of waters known as alkaline, carbonated, and saline. Its chief mineral constituents, according to our analysis, are sodium chloride, sodium carbonate, calcium carbonate, and magnesium carbonate. These constituents are not present in excess, but suffice to give the water an alkaline and mildly saline character. On concentrating half a litre of the water and removing the carbonate and alkaline earths, an examination by the spectroscope showed prominent lines due to the presence of lithia. Quantitative analysis gave the following results in grains per pint: sodium chloride, 14·33; sodium carbonate, 1·45; calcium carbonate, 3·85; and magnesium carbonate, 1·85. The water showed a freedom from organic impurities; it is clear and palatable and pleasantly sparkling with its own natural gas at only a moderate pressure. It is stated to be radio-active, but this only an examination at the source can prove satisfactorily.

DRIED BANANAS.

(HILARY AND CO., ROYAL STANDARD WORKS, WANDLE-ROAD, CROYDON.)

The interesting point in the analysis of these bananas is the practical absence of starch, sugars and dextrin having replaced it by the action of ferments. Roughly speaking, the substance of these bananas, excepting, of course, cellulose and fibre, was soluble in water. Analysis showed moisture, 33·06 per cent.; mineral matter, 2·95 per cent.; protein, 3·97 per cent.; sugar and dextrin, 54·32 per cent.; and cellulose and fibre, 5·70 per cent. The bananas had a shrunken appearance due to the withdrawal of water, but they were not sticky or unattractive, and so the desiccating process may be pronounced as successful. There were small traces of alcohol present due to slight fermentation of the sugar.

(1) PELLIDOL; (2) AZODOLEN.

(A. AND M. ZIMMERMANN, 3, LLOYDS-AVENUE, LONDON, E.C.)

Scarlet red has been employed as a stimulant to the epitheliation of granulating surfaces for some time, but other allied agents have been introduced for which improvements are claimed. Pellidol is such a substance, which is chemically the diacetyl derivative of amido-azo-toluol (scarlet R). Unlike scarlet R, however, pellidol is said to be destitute of colouring properties, while any stain of the skin or linen it may cause can be removed by soap and water. A further undoubted advantage of pellidol is that it is soluble in fat and oils, for it follows that it is easily miscible with the fats used as the basis of ointments. Scarlet R forms for the main part a suspension under these circumstances. 2. Azodolen is a combination of pellidol with iodolen, the whole presenting a stimulating action due to pellidol and an antiseptic effect due to iodolen which contains 30 per cent. of iodine. We had no difficulty in ascertaining the presence of iodine in the compound.

(1) SECRETOGEN; (2) KINAZYME.

(G. W. CARNRICK CO., 35, HIGH-STREET, HORNSEY, LONDON, N.)

1. Secretogen tablets are stated to be prepared with prosecretin and succus entericus obtained from the epithelial cells of the duodenum, combined with the zymogens of the pancreas. They are suggested for use in derangement of the digestive organs, particularly in faulty digestion of starches accompanied by fermentation and flatulence. We made one test which sufficed to show their digestive activity—starch was rapidly changed and converted into, first, soluble starch, and then sugar while under the influence of the secretogen tablet. In promoting nutrition or encouraging metabolic order the tablets are said to be useful in dyspepsia of old age, in chronic diseases, and in functional nervous disorders. 2. Kinazyme is described as a preparation of the splenic extract combined with the essentials of secretogen. This occurs also in tablet form, and the tablets submitted to us showed again digestive activity. Some calcium lactate is present with the view of increasing the calcium content of the body. Both preparations contained not only the enzymes indicated, but the peculiar physiological substances which stimulate them to activity. Generally speaking, the preparations would appear to be adapted for cases of malnutrition, and kinazyme is stated to have given encouraging results in tuberculosis, an increase in the body weight having followed its exhibition.

APHRODONT (DENTAL FOAM).

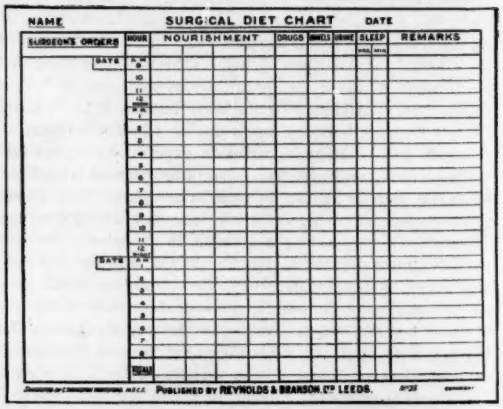
(SAVORY AND MOORE, 143, NEW BOND-STREET, LONDON, W.)

We have examined this preparation and the results enable us to confirm the general claims made in its favour. There are several essential points required in a preparation intended for the cleansing of the teeth and gums, and we think that these points have been carefully borne in mind. Thus aphrodont, we find, contains antacid, anti-fermentative, antiseptic, and bactericidal substances. It is also satisfactory mechanically inasmuch as its application leaves a smooth feeling, and there is no evidence of the presence of a gritty substance in its composition. Its bactericidal and antiseptic powers are due to certain well-known essential oils which while effective as such are not unpleasant to use. There is also a curious "freshness" experienced in the mouth after the application of this tooth paste. Lastly, in the process of brushing the teeth with aphrodont a foam is formed which should ensure the passage of the bactericides into the cavities and interstitial spaces.

New Inventions.

SURGICAL DIET CHART.

THE chart here illustrated is intended for use in conjunction with the combined temperature, pulse and respiration chart of Mr. Mayo-Robson. Redundant details have been eliminated; spaces have been left for surgeon's orders and nurse's remarks. On a record of 24 hours, which includes



portions of two days, there is apt to be doubt as to which day the record refers. This has been obviated by leaving two spaces for dates at the left of the "hour" column. Under "nourishment" the sub-headings have been left blank, to be filled in as required—i.e., "rectal saline," "milk," &c. All details have been printed in bold type, easily discernible in the shaded light of a sick room.

Plymouth. C. HAMILTON WHITEFORD, M.R.C.S. Eng.

THE LANCET.

LONDON: SATURDAY, JANUARY 4, 1913.

The National Insurance Act.

WE greet our readers in this the first issue of THE LANCET for the year with the traditional wish, "A Happy New Year"—not too confidently expressed, for it is a fact that 1913 finds the medical profession in a sorely trying plight. Never has our scientific progress been more sure, and while on all sides work of the best sort is being enthusiastically done, the public, which has grown steadily better instructed in our aims, has shown itself willing throughout the year to coöperate in many great schemes for the advancement of our learning and the development of our objects. So far, very good. But through no fault of the profession it finds itself at the present time in a public position of a most vexatious sort. We are on the eve of the date at which the administration of medical benefits under the National Insurance Act is due to begin; and, as we write, no one knows how far this administration is possible. The situation is one of great anxiety for all. Indeed, the public is as concerned in the issue as the medical profession, since anything which profoundly disturbs the profession of medicine must also affect the public to which it ministers. It requires much optimism to take a cheerful view of the present crisis, but there are grounds for believing that some of the sentiments which have been expressed, both by those who think that ruin lies in taking service under the Act and those who think that it lies in the reverse direction, are without foundation. The scientific position which medicine holds, and the fine ideals necessary to its proper practice, are the circumstances which preclude us from taking too black a view of the rupture that has occurred in our ranks. These ideals are universally cherished, and these alone make it sure that no schism can be of perpetual standing.

But the events of the last fortnight have made it only too obvious that a serious breach exists in medical unity at the moment. Unless this is quickly healed our profession may suffer, and some of our number may be hard put to it for their livelihood, while the health of a substantial proportion of the population of this island may be jeopardised by delay in arranging a properly organised system for the administration of medical benefits. The trouble has not, of course, come as a surprise, but only as the fulfilment of anticipations long fought against. Many months ago there were signs that medical opinion was, and would remain for some time, divided upon the merits of the Act, and we foresaw that this difference would be emphasised when the final terms offered by the Government came to be considered by the profession as a whole. But there seemed always a chance of avoiding an open split, and from week to week we hoped that, in spite of the difficulties in the way, some common course might be devised whereby medicine would keep a united front, and minister as a body to the public needs with the singleness of purpose which, it is allowed, has always characterised our dealings with our humbler patients. Varying views there were certain to be, but it seemed possible that we might adjust them among ourselves, and be spared the magnification of our discordancies in the daily press and the fomenting of them by wild politicians. Exactly a year ago—that is, in an article appearing in the first issue of THE LANCET for 1912—we attempted a general forecast of the future of the medical profession in its relations with the public under the National Insurance Act which three weeks previously had passed into law; and we then indicated what were the best and what the worst things which could happen to our profession, and through it to the community, in the year which is now past. We said then that the deepest disaster of all would be for the medical profession to split up into groups and factions. After 12 eventful months a definite split has occurred. A year ago the policy of the British Medical Association was to a large extent shaped by a Council favourably inclined towards the Act and optimistic as to the future of the medical profession under it. Now the machinery of the Association is almost entirely controlled by members who take an absolutely opposite view. The reasons for this remarkable change in policy and *personnel* can be easily followed by anyone who has watched the various moves and counter-moves made by the Government and the Association—most of our readers are perfectly familiar with the story—but the wisdom of what has been done on either side is not apparent in the outcome. The burden of blame lies primarily on the Government, who damaged a measure of fine design by haste in execution and ignorance in detail. The immediate result of long-drawn-out negotiations has been a break-away from the control of the British Medical Association of those who are willing to work the Act, and the formation of an association whole-heartedly in favour of accepting service under the terms and conditions offered by the Government. That this would happen, and that it would imperil the unity of the medical profession, and so tend to break down opposition to the Act, was perhaps foreseen by the Government and the Commissioners. The undisputed fact that many members of the medical profession are satisfied with the terms now offered, or, at any rate, are apprehensive of the consequences of refusing service, has led to a vigorous campaign in opposition to the present policy of the British Medical Association, and to a no less vigorous affirmation of its position by that body. Each side seems confident of success, and, we regret to add, each side confidently accuses the other of political bias. This sort of thing ought to be left to the political journals, several of which—and with an eye to the interests of both political parties—during the past week have gravely misrepresented the facts. But it cannot be denied that at the present time a state of war exists between what are still the majority of the profession, who stand by the existing policy of the British Medical Association, and a minority, who wish to work the Act and who hold, for reasons that have been strongly advanced, that the final terms proposed by the Government absolve practitioners from pledges previously given. A statement from Mr. LLOYD GEORGE, which will not be issued in time for publication here, may clear the situation,

and incidentally throw light upon the postponement of the date for closing the panels, which has been granted in London.

There seem to be three courses before the medical profession, and all three are being tried. One course is to stand aside from the Act, with the idea of forcing the Government to permit medical men to come to terms by sections with large bodies of insured persons, the risks of control by Friendly Societies being now considered by the British Medical Association as less than the risks of supervision by Insurance Committees. A second is to work the Act under the terms and conditions proposed by the Act and Regulations. A third, which may follow upon an ineffectual resistance, is the establishment of a whole-time medical service throughout some districts, and the break-up of all existing medical ideals and traditions. At the present moment it is impossible to foretell what the issue will be. We do not know how far adequate panels have been formed throughout the country, but it seems certain that the Act can be worked perfectly well in many places, though not at all in others. Within a few days the numbers of medical practitioners who have put their names upon the panels in different districts will be known. The figures which up till now have been forced upon our notice have been almost worthless, because of the suspicion that their source was tainted in some way or another; but the truth must be manifest quite soon, when the chances of peace can be better estimated. And it is because we believe that those chances will be found slender, and fear that a period of real hardship may supervene for many, bringing rancour and resentment in its train, that we fail to greet the prospect of this opening year with any great enthusiasm for what it may have in store. The lesson of the day, however, is not one of despondency; it is the duty of us all to work for the removal of dissensions. There must be no more idle talk of tyrants and blacklegs or of Tories and Radicals (equally degrading epithets, it would appear), but there must be a common resolve to see under which of the varying conditions the medical benefits under the Act can be best administered—best, that is, for the public and the profession alike.

The Annual Report of the Medical Officer of the Local Government Board.

AMONG the publications of His Majesty's Stationery Office there is not one that, in our judgment, deserves more earnest study by every well-wisher of his country, medical man or layman, than does the annual report of the medical officer of the Local Government Board. The present volume is the forty-first of a series which was originated by Sir JOHN SIMON, the great medical adviser of the Privy Council, as the official record of English sanitary progress and administration. The high standard of the work has been fully maintained by SIMON'S successors at the Local Government Board. Under the able direction, successively, of SEATON, BUCHANAN, THORNE THORNE, and POWER the annual volumes have attained an ever-increasing importance and a reputation of which our profession may well feel proud, and Dr. A. NEWSHOLME, in issuing the report for 1911–1912, has striven manfully to maintain the standard. Commenting on the issue of the report for 1909–10 [1] we expressed the hope that the usefulness of the publication may eventually be enhanced by extension beyond the accustomed limits, so as to embrace a survey of the health conditions obtaining in every part of the British Empire. That something of this nature is feasible would appear from an account in the present volume of the results of last year's International Sanitary Conference in Paris. We welcome this evidence of increasing scope. In yet another direction we see a fortunate development. The independent medical reports of past years, emanating from Whitehall and Somerset House respectively, have, in our view, somewhat suffered by their independence, and we have often indicated the expediency of closer relation between these departments of the State, by which means a much-needed uniformity of record would be established respecting the essential conditions of health in every part of the British Isles. In the interests alike of efficiency and of economy it is important that the Government departments dealing with the several aspects of the public health question should work together, where possible. That this, indeed, is the intention of Parliament would appear from the circumstance that the statistical and medical reports of the Registrar-General are officially addressed to the President of the Local Government Board as the Parliamentary chief of both departments, and there is evidence that harmonious interchange of labour is taking place.

A highly important section of the report is that which relates to the appointment of county and district medical officers of health, and to their relations to the authorities they serve, as well as to one another. At the present time there are in extra-metropolitan England 198 medical officers of health who are debarred from private practice. But a very large proportion of the English population is served by part-time officers. With respect to these Dr NEWSHOLME reports adversely. "It must be admitted," he writes, "that the increasing number and complexity of the subjects with which medical officers of health are required to be acquainted make it more and more difficult for them to meet the large demands which are made on their time, if satisfactory advice is to be given and judicious action taken." Of the untoward effects of part-time appointments illustrations may be quoted from the experience of a recent epidemic of poliomyelitis. From the report of Dr. RICHARD J. REECE, which is included in the appendix, we learn that both in Devonshire and in Cornwall the arrangements for sanitary supervision are unsatisfactory. In these two counties, outside the county boroughs, there are but two out of 77 medical officers of health who are not occupied in private practice. Now many of the arguments for the retention of part-time medical officers of health, with, of course, a proper security of tenure in their appointments, are unassailable, and although it may be admitted that in some country districts the work has not always been well done, in many others it has been done splendidly, and in nearly all the medical men are insufficiently

[1] THE LANCET, Jan. 28th, 1911, p. 247.

remunerated for the work required of them. The work, if efficiently performed, frequently brings them into conflict with vested interests, and they are neither properly paid for delicate duties nor adequately protected in their discharge. But when infectious disease becomes prevalent in a country district a medical officer who is engaged in private practice can ill afford the necessary time to deal effectively with the outbreak. Several examples of this were met with during the year, and it is such cases that render the position of the part-time officer so difficult. Dr. REECE expresses the opinion that a revision of the previous policy of sanitary administration, the provision of suitable isolation hospital accommodation, and the appointment of expert medical officers of health are matters of imperative importance if the counties of Devon and Cornwall are to maintain their reputation as health resorts. In view of considerations like these the Local Government Board is urging upon local authorities the advisability of combining for the appointment of whole-time medical officers for a number of districts. Consequently, at least 63 such appointments have already been made in England and Wales. The policy is a practical one, but it seems to be aimed at the destruction of the part-time system. Now, given proper security of tenure and, of course, proper remuneration, there is much to be said for the retention of the part-time principle, especially with a coördinating head in the person of a county medical officer of health. It is satisfactory to learn that with a single exception every administrative county is now provided with a county medical officer of health. In 53 counties the same officer has been appointed school medical officer, thereby securing relationship between general sanitary administration and the hygienic education of the rising generation.

A demand has recently arisen in various quarters for a reorganisation, on a new system, of the county public health service of England, particularly in regard to the appointment of medical officers of health. Among the remedies proposed are the redistribution of local sanitary areas in such manner that each unit shall be large enough to maintain a medical officer of health giving his whole time to public work; the compulsory formation within each county of combinations of existing districts for the appointment of sanitary officials; and lastly, the establishment in England and Wales of a county public health administration on lines similar to those existing in Scotland. "It is needless to add," says Dr. NEWSHOLME, "that in order that full effect should be given to any of these proposals, legislation would be necessary," but there is no reason to fear opposition in Parliament. The foregoing may be taken as briefly outlining the official view of what is necessary for the preservation of the public health, especially in rural districts; and the experience of the inspectors unquestionably proves that the present methods of rural sanitary administration are both wasteful and inefficient. Nevertheless, the changes foreshadowed in the report are of a sweeping character, and have consequently aroused a protest among country practitioners, many of whom, having the necessary equipment and breadth of view, are naturally anxious to retain the sanitary and school work, as well as the prospective duties under the new regulations against tuberculosis. A considerable number of country practitioners have at considerable cost and inconvenience qualified themselves for public health appointments, after submitting to the necessary course of study and laboratory training. These practitioners have our entire sympathy; they have reasonable grounds for complaint if after months or years of special study they are deprived of the legitimate fruits of their labour.

Considerable dissatisfaction has recently been expressed by persons interested in the progress of scientific medicine at the apparent neglect of pathological research by the Local Government Board. It is a somewhat prevalent belief that the official energy devoted to the development of pathological research at Whitehall is insignificant, as compared with that which is expended on other scientific work, although the Board receives annually a Parliamentary grant which is available for the former purpose. The references in the medical officer's present report to the Board's pathological laboratory are only scanty, but we cannot believe that Dr. NEWSHOLME will depart from the enlightened policy in this respect of his official predecessors, or that he will fail to embrace every available opportunity of encouraging the progress of this important branch of science. We are certain that a statement of policy in this direction would be welcomed by our readers.

Annotations.

"Ne quid nimis."

THE NEW YEAR HONOURS.

AMONG the medical recipients of New Year Honours are Dr. Francis Darwin, F.R.S., the distinguished botanist, and third son of Charles Darwin; Dr. Robert William Philip, of Edinburgh, whose preventive work in respect of tuberculosis is well known to all our readers; Dr. David Hardie, of the Queensland Central Board of Health; and Dr. George Turner, formerly medical officer of health of the Transvaal. Each of these has received a knighthood. In the Order of the Bath Inspector-General Duncan Hilston, R.N., C.B., has been promoted to K.C.B. In the Order of the Indian Empire Major William Glen Liston, I.M.S., Director of the Bacteriological Laboratory at Parel, and Lieutenant-Colonel Walter James Buchanan, I.M.S., Inspector-General of Prisons, Bengal, have been made Companions. Major Henry William Grattan, R.A.M.C., Dr. John Andrew Turner (Health Officer to the Bombay Municipality), Major Ernest Reinhold Rost, I.M.S., and Major Ellacott L. Ward, I.M.S., have received the Kaisar-i-Hind Gold Medal. The list is a short one.

THE HISTORY OF ST. THOMAS'S HOSPITAL.

IN mediæval times there were some 20 religious houses in London, Westminster, and Southwark which occupied themselves with the care of the sick in general or of lepers in particular, and it is somewhat melancholy to remember that of all these only two hospitals—namely, St. Bartholomew's and St. Thomas's—survive, for though there is a Charing Cross Hospital to-day it has nothing to do with the ancient and interesting Hospital of St. Mary Roncevall at Charing. Corruption and the falling away from ancient ideals, together with the greed of Henry VIII. and his courtiers, led to the suppression of the religious houses, but the excuse of putting down abuses did not, even at the time, commend itself to every observer. Henry Brinkelow (died 1546), formerly a Franciscan and

afterwards a member of the reforming party, writing under the name of Roderigo Mors, says: "Your pretence of putting down abbeys was to amend that was amisse in them. ..... It is amended euen as the deuell amended his dames legge (as it is in the prouerbe), whan he shuld haue set it ryght, he bracke it quyte in peces." In an interesting little sketch which appeared in the December issue of the *St. Thomas's Hospital Gazette*, Dr. W. S. Colman reviews the chequered and honourable career of the hospital of St. Thomas. Its early days are shrouded in mystery, but are closely connected with the Augustinian monastery of Southwark. This originated in a foundation for nuns by Mary, a noble woman, long before the Conquest. Then Swithina, a noble lady, converted it into a college for priests, and tradition states that Thomas à Becket equipped a hospital for sick pilgrims in the Priory. But the real founder of the hospital appears to be Richard, Prior of Bermondsey, a Cluniac house, who was appointed in 1189 and founded an Almery or Domus Conversorum in the Sellerer's ground against the wall of the monastery in 1213. This was soon destroyed by fire, and in 1215 Peter de Rupibus, Bishop of Winchester, refounded the Almery as a hospital, dedicating it to St. Thomas the Martyr, and making it independent of the jurisdiction of the canons of St. Mary, but keeping it under his own, as diocesan. Like all mediæval foundations for the sick it was a religious house, where the sick were cared for and where casual paupers were taken in. Abuses naturally crept in with the passage of time, and in 1536 the Master, Thomas Mabbot, was complained of for that "he openly kept a concubine and sold the church plate, pretending that it was stolen." After the dissolution the hospital of St. Bartholomew was, on the petition of the citizens of London, grudgingly "refounded," but nothing would induce Henry VIII. to allow St. Thomas's to be reopened, and it was not until 1553 that the hospital, with its dedication changed to that of St. Thomas Apostle instead of St. Thomas the Martyr, was reopened for "300 poore," for the medical care of whom a physician, a surgeon, and a bone-setter were appointed. To pass to the eighteenth century, in 1703 Richard Mead was appointed physician and in 1704 Thomas Guy became governor. The latter worthy, though eminently charitable and possessing a name that must be always honoured by medicine, made his money by questionable means. Thus he ignored the privileges of the University Presses and of the Stationers' Company, and published "pirated" copies of popular works; he was also kind enough to accommodate seamen with immediate advances on their Treasury notes, at a heavy discount, recovering the face value of the notes later. In 1720 he made a fortune in the South Sea gamble and founded Guy's Hospital, later to be united with St. Thomas's. The union was soon found to be inconvenient, and was practically dissolved in 1836. In 1862 St. Thomas's Hospital was displaced by new railways, and a site was found for the charity on the Embankment opposite the Houses of Parliament. The present buildings were opened in 1871, and here, as it has flourished in the past, St. Thomas's Hospital continues to flourish.

REMARKABLE SUCCESS OF ANTITYPHOID VACCINATION.

AT a meeting of the Académie de Médecine of Paris Dr. H. Vincent recently reported some remarkable results from antityphoid vaccination. In 1912 an epidemic of typhoid fever of water-borne origin occurred in Avignon. It began in June, and attained its maximum in July and August. The exact number of cases in the civil population, which amounts to 49,000, was difficult to estimate; 644 were notified, of which 64 were fatal, but it was generally supposed that the total number of cases must have amounted to 1500 or more. During the epidemic the garrison of the town consisted of 2053 men, of whom 1366 were inoculated with a polyvalent antityphoid vaccine, leaving 687 unvaccinated. No untoward effects were produced by the vaccine. Among the unvaccinated soldiers 155 cases of typhoid fever, with 21 deaths, occurred, while among the vaccinated, who numbered twice as many, not a single case occurred. Both the vaccinated and the unvaccinated soldiers lived under exactly the same conditions, sleeping in the same rooms, drinking the same water, eating the same food, and participating in the same manœuvres. It is also noteworthy that 841 of the soldiers were not vaccinated until the height of the epidemic, and in none was anything observed which could be described as a "negative phase." Some soldiers received one or two injections during the incubation period of typhoid fever, and in them the attacks were slight. It is noteworthy that the epidemic was severe; among the unvaccinated the morbidity and case mortality were high. Many of the vaccinated soldiers received only a single injection for various reasons, such as the exigencies of the service, indisposition of various kinds, or unwillingness to continue the treatment. The dose of antigen was therefore small and the immunising power of the vaccine all the greater. Antibodies were produced in such abundance that the blood showed bactericidal qualities like those produced by an attack of typhoid fever. M. Vincent concluded by making a strong appeal for the vaccination against typhoid fever of families, schools, and communities exposed to infection. This he considered particularly necessary in the case of those attending upon patients suffering from the disease or living in localities contaminated by the bacillus.

FRACTURE OF THE TUBEROSITY OF THE ISCHIUM DUE TO MUSCULAR ACTION.

SKIAGRAPHY has in many ways revolutionised our knowledge of fractures. It has brought to light many which were previously unknown and shown that some are not so rare as was supposed. In the following case it enabled a very rare condition—fracture of the tuberosity of the ischium due to muscular violence—to be diagnosed. In a recent number of the *Journal of the American Medical Association* Dr. John M. Berry has reported the case of an Italian, aged 23 years, who came under observation. Three years before, while running in a race, he "felt something crack" in his left buttock and fell forward to the ground. He could get up and walk, but the buttock was very painful and tender. The acute symptoms gradually subsided, but pain, tenderness, and weakness persisted. At last the condition became so annoying that he sought advice. On examination he was found to be well nourished and muscular. He complained that he could not sit on a hard chair with comfort on account of soreness of the left buttock, of pain in it when he attempted to bend forward, and of pain and audible grating on movements of the left leg. A little to the outer side and below the normal position of the tuberosity of the ischium and deep in the tissues was a hard mass about 4 or 5 centimetres in length and of indefinite width and thickness. It could be moved with the fingers, and the movement caused the pain of which the patient had complained. A stereoscopic skiagram showed that the mass was a detached fragment of the tuberosity of the ischium, which had been displaced outwards, downwards, and somewhat backwards. It must have been detached while the patient was running, by the strong action of the hamstring muscles, which arise from the portion of the ischium detached. Under anæsthesia the fragment was removed through an incision over it and

parallel to the long axis of the leg. Uneventful recovery followed. The patient was last seen one month after the operation. There still remained slight soreness in the buttock, but otherwise his condition was satisfactory. Fracture of the tuberosity of the ischium is rare. In the last edition of his work Scudder merely mentions this fact. Stimpson refers to six cases collected by Malgaigne. In his recent book on fractures Cotton states that he has no doubt that the fracture may occur, but although he has seen a number of cases in which the diagnosis was made it was justified in none.

HERBALS.[1]

THE author of the book called "The Wisdom of Solomon" enumerates among his various intellectual acquirements a knowledge of plants: "For He hath given me certain knowledge of the things that are, namely, to know ..... the diversities of plants and the virtues of roots," and such knowledge was from the first a most important possession for human kind. Plants were so many and of such varying nature, some good for food, others harmful, others again deadly, that the discrimination of the good from the evil must have been early acquired by men. The mystery of their growth and the remarkable dissimilarity between the early stage such as an acorn, and the seedling oak, to say nothing of the adult tree, was probably one of the causes which led to trees and plants being credited with, in the first instance, magical properties, from which by experiment arose a knowledge of their real medicinal properties. So it came to pass that early botany dealt chiefly with abstract speculations as to the nature of plants and their place in the natural world and also with their energies (*virtutes*), magical or medicinal. Every mediæval encyclopædia had a section dealing with plants, and much of the information given is, as might be expected, not conspicuous for accuracy, for the writer's zeal generally outran his knowledge, although in many instances the early botanists showed learning in advance of their times. Thus, Mrs. Arber points out in her book upon the origin and evolution of herbals, Theophrastus, a pupil of Aristotle, noted the distinction between centripetal and centrifugal inflorescences, and Albertus Magnus had grasped certain facts in morphology. The subject of Mrs. Arber's delightful work is mainly the evolution of the *printed* herbal, so she gives only a slight sketch of the classical and early mediæval herbals, dealing rather with such as were printed in the fifteenth and following centuries. The earliest printed herbals were a portion of the "Liber de Proprietatibus Rerum," an encyclopædia written in the thirteenth century by Bartholomæus Anglicus, and the "Book of Nature," by Konrad von Megenburg. The former was first printed in 1470, the latter in 1475, with woodcuts of various plants, but the work of Bartholomæus was not illustrated until Wynkyn de Worde issued an edition with woodcuts in 1495. Among other well-known herbals printed about this date was the "Herbarium" of Apuleius Platonicus, a work held in high esteem by our Anglo-Saxon forefathers, who used it in a translation of which four MS. copies still survive. First printed about 1480, it was illustrated with rude copies of the original MS. illustrations which had been coloured, and probably, as Dr. J. F. Payne pointed out,[2] were in their turn copied from some Græco-Roman drawings. Within the last 20 years of the fifteenth century there appeared two important herbals—namely, the German "Herbarius," 1485, and the "Ortus Sanitatis," 1491, which was, in part, a Latin translation of the German "Herbarius," although also containing much new matter; for in addition to descriptions of plants it also included treatises on animals, birds, fishes, and stones, which are almost unrepresented in the "Herbarius." It was very fully illustrated with curious engravings, a number of which Mrs. Arber reproduces. We note, by the way, that she does not seem to have fully grasped the meaning of the illustration of the unicorn, reproduced on p. 33, for on p. 31 she refers to it as "a unicorn being caressed by a lady as though it were a little dog." This method of representing the unicorn was almost universal in mediæval times, and refers to the belief that the unicorn could not be captured by ordinary means, but only by the device of sending a virgin into its haunts. The unicorn thereupon came and laying its head in the virgin's lap went to sleep, and so was easily taken. Hence we find the unicorn and the virgin used in mediæval art as a symbol of the Incarnation. We make no attempt to deal in detail with Mrs. Arber's scholarly and interesting work, all medical men of historical and archæological bent are advised to read the work for themselves. From the consideration of the earliest printed herbals she passes to the early history of the herbal in England, to the botanical Renaissance of the sixteenth and seventeenth centuries, and concludes her labours with chapters dealing with the evolution of plant description, of plant classification, of the art of botanical illustration, and of the doctrine of signatures and astrological botany. Altogether a very charming book full of valuable and curious lore made all the more instructive by means of the many excellent illustrations, reproduced from the old originals.

[1] Herbals: Their Origin and Evolution. A chapter in the History of Botany, 1470–1670. By Agnes Arber, D.Sc., F.L.S. Cambridge: At the University Press. 1912. Pp. 253. Price 10*s.* 6*d.* net.

[2] FitzPatrick Lectures, 1903.

CHOLERA AT TOULON IN 1911.

CHOLERA attacked Marseilles in June, 1911, and caused 466 cases and 225 deaths in the next four months. By the middle of November it had disappeared, and France was thought to be clear of the disease, when suddenly an epidemic of 18 cases (with 6 deaths) developed in the Toulon fleet. An account is given in the *Archives de Médecine et Pharmacie Navales*.[1] Diagnosis was at first curiously obscured by a coincident epidemic of food poisoning (40 cases) which broke out on Nov. 15th and 16th on the s.s. *Justice*, but was soon shown to be a different and a slighter disease. Of cholera, 2 cases appeared on the night of Nov. 14th, 1 on the 15th, 10 on the 16th, 1 on the 17th, 2 on the 18th, another the same day in a dockyard labourer, the only case that occurred ashore, and the last case on the 21st. The disease was officially diagnosed on the 16th, on laboratory findings, as cholera, with a promptitude that merits recognition. The most important question is the origin of the epidemic; that is discussed and, for reasons stated, is considered not due to carriers, nor to vegetables or other foods, but to contaminated water. Here it must be mentioned that three kinds of water are in use in the Toulon fleet: (1) distilled water, for drinking; (2) Toulon water, for washing; and (3) dockyard water, for boilers. This dockyard water is a surface or shallow well water, draining off a well-cultivated area in the neighbourhood of the town. Cholera was declared on Nov. 16th, and on the 17th all these waters were examined in every ship, well, standpipe, &c., and especially in the water boats that ply in the harbour. By the 19th the distilled and Toulon waters were proved to be uninfected, but cholera bacilli were found in all samples of the dockyard water, and a growth as plentiful came from the tanks of certain water boats as from the stools of some of the patients. This intensity of infection was reached because the water boats rarely empty their tanks completely, and sometimes keep them full and unemptied for weeks, the bacilli increasing

[1] August and September, 1912.

all this while. When it was known that the dockyard water was infected it became important to decide at what date it had received the infection, and it appeared that that must have occurred between Oct. 25th and Nov. 3rd. The first squadron had escaped cholera, though it had got its boiler water between Oct. 20th and 25th, while the *Suffren* and *Marceau*, which took water before Nov. 3rd and left Toulon on the 7th, were still away when they began to have cases (*Suffren* 14th, *Marceau* 16th). The other cases occurred at Toulon. Distilled water circulates in the French ships in a special canalisation of its own; it was not infected in any ship. The washing water and the boiler water are in separate tanks indeed, but are distributed by a common system of pipes, and here they can, and do, become slightly mixed. That is doubtless how the infection got to the washing water, and through that it reached the men. By the middle of December the dockyard water had ceased to be infected. To prevent such accidents in future it is proposed that all shore water brought on board a ship should be at once sterilised by heat (steam), and that a better water-supply be found for the dockyard. Alternatively, better control of the gathering ground is needed. No case of cholera had occurred on the gathering ground, where all the houses are provided with Toulon water. Seven diarrhœa cases occurred; six had cholera bacilli in their stools. 122 contacts were isolated, of whom two were found to be healthy carriers. The other 3000 men in the fleet were not examined. The best treatment was the intravenous injection of from 3 to 5 litres of normal saline solution; indeed, the reporters declare it is the only rational treatment. It produces a speedy reaction from the first, but the whole quantity must be given at the rate of 1½ litres in an hour or relapse occurs. Further details of the method are in the paper, which also fully and interestingly describes each of the 18 cases. On Nov. 20th all shore water was, by order, pumped overboard and all tanks were disinfected by steam, and the epidemic at once ceased. The article in our contemporary is a valuable record of an interesting epidemic.

MEDICAL PHILOSOPHY.

THERE is, we suppose, no surer test of the greatness of a philosopher than the application of his principles and his conclusions to new circumstances, such he himself can never have foreseen or contemplated. Just as the "Book of Snobs" holds up the mirror to human nature as faithfully now as ever it did, because it is based upon a bedrock of essential truthfulness, so the less mordant but no less penetrating philosophy of Oliver Wendell Holmes is still applicable to human affairs for a similar reason. Like Thackeray, Holmes took wide views, and he does not obtrude his medical training upon those who know him as Poet and as Autocrat. Yet there is scattered through his writings much that for want of a better term may be called Medical Philosophy, and, as with the rest of his literary output, it has a peculiar sanity and sensibility which render it as reliable in twentieth-century England as in Boston 60 years ago. This treasury of medical inheritance has been ransacked by Dr. Percy Warner, who read a paper lately upon Some Medical Aspects of Oliver Wendell Holmes before the South-West Essex branch of the British Medical Association. It can never be forgotten that Holmes in a moment of inspiration anticipated Semmelweis over the cause and nature of puerperal fever. That would have been enough for most men, but not so for the Autocrat, whose medical philosophy ranged over the whole art and science of the profession. Thus, the quotations which Dr. Warner makes from his writings show with what admirable sense and lucidity he summed up the proper relations of science and empiricism in medicine. His clear conceptions and apt illustrations might almost have been written in the present era of clinical pathology and of reactions rampant. It is his power of seeing all sides of a question and his instinctively logical and truthful habit of mind that account for this apparent prevision. Never a clinician, save for the first two years of his professional career, Holmes yet grasped many truths about medicine which some of the wisest physicians have been slow to appreciate. In his intimate knowledge of human nature, in essential humanity and kindliness, and in versatility and breadth of view, Holmes has a unique position in American literature. To assess his genius on an equality with that of Thackeray would be an error, but the two men have much in common, and their books are standing the crucial test of time exceedingly well. How well in Holmes's case Dr. Warner's audience at Woodford must be able very clearly to appreciate.

THE COMPLEMENT FIXATION TEST IN TUBERCULOSIS.

IT is now some years since Wassermann and Bruck demonstrated, by means of the complement-fixation test of Bordet and Gengou, the presence of a complement-fixing substance in the blood serum of patients undergoing a course of tuberculin injections. Citron was the first to show that these substances could be demonstrated in the blood of tuberculous subjects who were not receiving injections of tuberculin. Since the appearance of these papers numerous observations on the subject have been published. In our present issue appears a preliminary inquiry as to the value of the test in tuberculosis by Mr. L. S. Dudgeon, Dr. W. O. Meek, and Dr. H. B. Weir. As is indicated by the title, in this communication the authors do not so much wish to put on record facts resulting from the research, but rather to foreshadow work to be done in the future. So far as the observations on pulmonary tuberculosis have been carried out, they show that in cases undergoing treatment other than by tuberculin injections the reaction was positive in about 84 per cent. of cases; in every case where the patient was under treatment with tuberculin the reaction was positive; in 14 out of 19 cases of "arrest," in which the disease had been quiescent for periods varying from a few months to seven years, the reaction was positive (73 per cent.). Of the 109 cases of pulmonary tuberculosis in which a positive reaction was obtained 56 gave a "strong" reaction, 28 a "medium," and 25 a "weak" reaction. In cases of tuberculosis other than pulmonary, mostly cases of so-called "surgical" tuberculosis, the reaction was positive in 57 per cent. of cases, whilst the blood of presumably healthy "contacts" gave in every case a negative reaction. Extended investigations on the effect of treatment on the reaction are promised in the near future.

THE DEATH OF HENRIETTA OF ORLEANS.

SOONER or later a historical tradition will be challenged. Recently a good deal of attention has been given to solving the puzzles of the deaths of various royal personages. The latest to be investigated is that of Henrietta Anne Stuart, Duchess of Orleans. In her case the dislike of a husband, envious of her undoubted political influence and jealous of her diplomatic ability, who showed his spite by suddenly withdrawing her at frequent intervals from the court of Louis, was followed by her painful death but a few days after a domestic quarrel. The facts were sufficiently suggestive to originate a belief that a cup of chicory water, taken ten hours before she died, had been poisoned by her husband's satellites. Her greatest achievement, the management of the Treaty

of Dover (June 1st, 1670), took place in the month of her death. On her return after this exploit to France she was loaded with gifts by the king, to her husband's open displeasure. On the 29th, early in the morning, she died, after less than ten hours' suffering. In *Progrès Médical* Dr. Maurice Genty refers to attempts by Brouardel and Legendre to prove that her death was due to natural causes. Professor Pozzi held that she died from a ruptured ectopic pregnancy. Littré, Anatole France, Cabanès, and others have argued that the cause was a subacute peritonitis due to a perforated gastric ulcer. That there was perforation somewhere in the alimentary canal is shown by the fact, mentioned in all accounts of the necropsy, that oil which she took some hours before death was found in the abdominal cavity. But Dr. Fabre, in the book[1] which serves as a text for Dr. Genty's article, points out that the five post-mortem reports agree that the stomach was *en bon état*, except for a small laceration made by Felix, the surgeon who opened the body. He therefore states that the perforation was duodenal. Dr. Genty declares this theory to agree with what we now know about duodenal ulcer, and finds it consonant with the facts.

HORSES AND ENTERIC FEVER INFECTION.

IN a recent issue[2] Mr. Alfred A. Hayes, district surgeon at Clanwilliam, South Africa, drew attention to the difficulty which he experienced in tracing the origin of the enteric fever which is frequently met with at isolated farms in this part of the Cape Province, and suggested that in some cases the infection might be attributable to horses, whose influence might be considered either as indirect, in view of the known facts as to the carriage of infective matter by flies, and the readiness with which flies are bred in horse manure, or as direct, if this animal is capable of acting definitely as a carrier of enteric fever infection. On the first question it is instructive to note some recent observations made in Liverpool by Dr. C. O. Stallybrass, which are referred to in a paper by Dr. G. L. Cox and others in the October number of the *Journal of Hygiene*. When the typhoid incidence in Liverpool in 1911 was studied in relation to flies, it was found that the marked excess of typhoid cases on the central part of the city as compared with the outer zones corresponded to a notable difference in the abundance of house flies in the two areas. The central parts include many of the insanitary courts of Liverpool, and it cannot of course be said that the relation was necessarily one of effect to cause, but it was noteworthy that while in the central area "plagues of flies" were frequently reported, the affected outer zones only showed a corresponding fly prevalence when there were horse stables in the close vicinity of the houses concerned. The Liverpool experience suggests that the breeding of flies in large quantities on horse manure in the neighbourhood of dwellings may be an important factor in the local spread of enteric fever if the flies have access to privies, trough closets, or even to the backyards which are often used by young children as common conveniences. It seems not improbable that, given an original infection, local spread of enteric fever in a South African farm may be brought about in a similar way. Of more direct infection, through the horse operating as a carrier, there does not at present seem to be positive evidence. If this were at all a frequent means of spread we should expect that the innumerable investigations which have been made into the circumstances of local enteric fever outbreaks, or of continued endemic prevalence of that disease, would long ago have brought out the existence of an excessive incidence upon cavalry regiments, or on stablemen and others who live with horses, or in connexion with horse fairs, or in similar circumstances. *Primâ facie* it seems probable that the migrations to isolated places which start the infections to which Mr. Hayes refers are human rather than equine. His suggestion, however, deserves further observation, which we hope will be made.

[1] Sur la Vie et la Mort de Madame, Henriette-Anne Stuart, Duchesse d'Orléans. Paris: Champion. 1912.

[2] THE LANCET, Nov. 30th, 1912, p. 1543.

"CALABAR SWELLING."

A TELEGRAM from Dr. R. T. Leiper, Interim Wandsworth Scholar of the London School of Tropical Medicine, has been sent to the school from Calabar, dated Dec. 27th, 1912. The expanded telegram reads as follows: "The metamorphosis of filaria loa has been proved to take place in the salivary glands in a fly belonging to the genus chrysops." This is a discovery of great importance because of the large number of Europeans who become infected with this worm in West Africa. The effects are rarely fatal, but the parental worm travels under the skin, sometimes under the conjunctiva, and may in that position set up conjunctivitis. The commonest result is the so-called "Calabar swelling." This is due to the worm's migrations in the deeper parts of the limbs among and within the muscles and round the tendons. The swellings are painful and impair movement, so that the victim may be unable to write or even to use his hands. The swellings rarely last for more than a few days, but often recur in the same or another part of the body. There is some reason to suspect that at times when travelling inside the skull the worms cause epileptiform convulsions. The importance of Dr. Leiper's discovery is that we may now be in a position to determine the conditions under which infection occurs and to prevent it. The members of the genus chrysops are day-biting flies and are very widely distributed, not only in the Tropics, but also in temperate climates, even in the British Isles. We hope that Dr. Leiper will be able to show which species of chrysops are the carriers, as we know that filaria loa is limited to West Africa. The embryos of filaria loa are found in the blood only during the daytime, and are therefore called microfilaria diurna by some, in distinction from filaria bancrofti, the cause of elephantiasis, whose embryos are found in the blood only during the night. Sir Patrick Manson many years ago surmised that this nocturnal periodicity pointed to a nocturnal blood-sucking insect as the intermediate host, and he proved that the intermediate hosts were certain species of mosquitoes. The diurnal periodicity of the embryos of filaria loa has suggested that the intermediate host was a day-biting insect.

POLLUTION OF PUBLIC WATER-SUPPLIES.

AT a recent meeting of the Institution of Water Engineers Dr. J. C. Thresh contributed a paper of considerable interest based upon recent experiences of the alleged pollution of public water-supplies. In most of the cases analysts or bacteriologists had found the bacillus coli in the water supplied to the consumers, and had consequently presented unfavourable reports. The sources of supply were subsequently examined by Dr. Thresh, and although in only one instance was dangerous possibility of pollution discovered, in all conditions were found which explained the presence of this bacillus and proved that there were defects which required attention. This indicates that whenever the bacillus coli is found in potable waters a careful and skilled investigation is required. In one instance Dr. Thresh found that the objectionable bacillus was derived from an inadequately protected tank placed under the engine-house floor. This contained a quantity of black slimy matter abounding in bacteria of an objectionable type, and when

the tank was cleansed and properly protected the water resumed its pristine purity. In two cases the inadequate protection of small reservoirs collecting spring water permitted of manurial matter from birds and cattle being washed, with every heavy rain, into the tanks. In another case rabbits and rats were found burrowing into the ground around the source of the subsoil water, and in another the source of pollution was the manuring of land adjacent to the springs. In one town "worms" were found in the water supplied to certain areas. These were discovered to be the larvæ of gnats, and they were traced to certain ball hydrants which were choked with road dirt. The whole results show the necessity for the regular and systematic examination of all public water-supplies, analyses of the water being made at regular intervals, and special samples being taken after heavy rainfalls and during periods of excessive drought. Any change in character would then be revealed and should be followed by an inspection of the source, the storage reservoirs, and the supply system generally, to ascertain the cause. If this were done in connexion with every public supply the risk of outbreaks of enteric fever would be reduced to a minimum. Doubtless at some time Parliament will insist upon such examinations being made and upon the results being promptly communicated to some central authority.

SEXUAL HYGIENE.

IN America and Germany for some time past, and in England recently, there has become manifest among educated persons a growing feeling that ignorance of sex is not the best solution of its attendant responsibilities, difficulties, and dangers. And a still larger number of people are learning to appreciate the fact, so ironically dealt with by George Meredith in "The Ordeal of Richard Feveral," that knowledge of the origin of life need not be the only form of knowledge to be excluded from the educational curriculum. How to dissipate this ignorance and how to replace it by the necessary knowledge without sacrifice of modesty or of the finer feelings has perplexed, and still perplexes, the mind of the serious reformer. A great number of books intended for the instruction of parents, young men, young women, and children in these matters have been published in America, but that all such books can be expected to fulfil the necessary requirements is as little to be anticipated as that all parents, all teachers, or even all medical men are fitted, by reason of their respective relationships to the person taught, to convey the same knowledge by word of mouth in a sympathetic and tactful manner. A useful little triad of books, written from the point of view of the requirements of the young man, the girl, and the boy respectively, have recently been published in America and deserve the attention of English readers. The first of these, entitled "Himself,"[1] is from the joint pens of Dr. E. B. Lowry and Dr. Richard J. Lambert. It consists of a series of short talks with men on matters which relate to sex, sex discipline, and sex dangers. There is no circumlocution on the part of these joint authors; a spade is called a spade, and the whole subject is dealt with as from men to men without sentiment or ambiguity. The two other books are written by Dr. Isabelle Thompson Smart, and are respectively entitled "What a Mother Should Tell her Daughter"[2] and "What a Father Should Tell his Son."[3] There is just a slight leaven of sentiment about these latter unpretentious books which deprives them of the material and worldly common sense which is so attractive to the practical mind in Dr. Lowry's and Dr. Lambert's writing, but then both girls and boys at the difficult epoch in their lives, during which these "talks" are supposed to be given, are always a little inclined to be emotional and sentimental, so that this suggested fault may not be a fault after all. Those interested will be well advised to study the delicate and tactful manner in which this woman (and doctor) handles an exceedingly difficult subject, a subject which many people think should be part of every medical man's education, and a subject in which, as a matter of fact, most of our profession are not overmuch informed.

[1] Himself. By E. B. Lowry and R. J. Lambert. Chicago: Forbes and Co. 1912. Pp. 216. Price $1.

[2] What a Mother Should Tell her Daughter. By Isabelle Thompson Smart, M.D. New York and London: Funk and Wagnall. Pp. 113. Price 2s. 6d.

[3] What a Father Should Tell his Son. By Isabelle Thompson Smart, M.D. New York and London: Funk and Wagnall. Pp. 103. Price 2s. 6d.

PROFESSIONAL SECRECY.

AT a recent inquest near Liverpool the question of a medical man's attitude towards his patient's confidential communications was raised. In this case it was proved that the subject of the inquiry, a dairymaid, had died from septic peritonitis due to the performance upon her of an illegal operation; and, in the absence of any evidence as to who had performed the operation, a verdict of wilful murder by some person or persons unknown had to be returned. The medical testimony left no doubt as to the fact that an illegal operation had been performed. There was also evidence that the deceased had spoken of having travelled to Liverpool to be operated upon there by a woman, with the result that a miscarriage occurred, but she had refused when dying to divulge the woman's name, and there was no clue discoverable as to who the criminal might be. Dr. R. Hill Brown, to whom the deceased had admitted that she had paid seven visits to the woman responsible for her death, could tell nothing as to the identity of the person referred to. It was suggested to him by a police superintendent, when in the witness-box at the inquest, that as he knew two days before death that a crime had been committed he ought to have then and there informed the police of it. To this he naturally and rightly replied that a medical practitioner was in a confidential position with regard to his patient, his duty being to do for her the best that he could. In this plea the coroner supported the medical witness, and the superintendent had to content himself with observing that it would have helped the police greatly to have known of the case earlier. We fully sympathise with the difficulties of the police in these cases—they are of regular occurrence—and we are sure that no one would more willingly have given any information enabling the police to track out a professional abortionist than Dr. Hill Brown. But a medical practitioner's first duty is to his patient, whose confidence he must respect and whose secret he must guard within reasonable limits. The case in question clearly demanded the silence of the medical man until his patient died. During her lifetime to give information to the police could have done her no good, and might perhaps have involved her in a criminal charge. After her death there was no such reason for silence, and as a matter of public duty the medical man who knew certain facts through attending her gave them in evidence. He could not give the name of the abortionist, for this he did not know.

Sir Ronald Ross has been appointed physician for tropical diseases to King's College Hospital, London. On the transference of the hospital to South London in the course of the summer he will have charge of beds for cases of tropical disease.

A Special Representative Meeting of the British Medical Association will be held in the Connaught Rooms, London, on Friday, Jan. 17th, at 9.30 A.M., and the following day, if

necessary, to consider the desirability of releasing members of the profession from their undertakings and pledges in connexion with the National Insurance Act, and further, to consider the situation created by the attitude of the Government towards the decisions of the Representative Body.

BY the new regulations issued by the Local Government Board on Dec. 20th, 1912, non-pulmonary tuberculosis is to be included from Feb. 1st, 1913, in the list of compulsorily notifiable diseases. This step appears to be in view of the fact that half the deaths from these forms of complaint occur in children under five years of age, and it is hoped thereby to effect an improvement in the environment of such children.

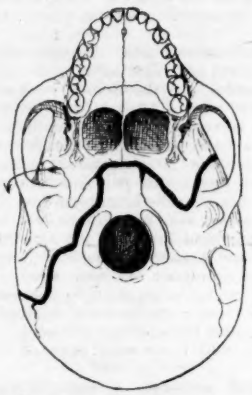
THE IDEAL LESION PRODUCED BY JUDICIAL HANGING.

BY FREDERIC WOOD-JONES, D.SC., M.B., B.S. LOND.,
DIRECTOR OF THE DEPARTMENT OF ANATOMY, THE LONDON SCHOOL OF MEDICINE FOR WOMEN.

THERE are at present in the Museum of the Royal College of Surgeons of England two most interesting series of examples of the lesion caused by judicial hanging: the first series is seen among the Roman period skulls of the Nubian Survey collection, and the second is a recent donation from Captain C. F. Fraser, I.M.S., one time superintendent of Rangoon Central Jail.

The first series has already been discussed in various publications, and may be summarised briefly as skulls showing a peculiar fracture of the base (depicted in Fig. 1)

FIG. 1.



The lesion present in the Nubian series of hangings and in the skull of Dr. Pritchard. Fractured base of the skull; effect of a subaural knot.

following upon leverage imparted to one temporal bone by a knot placed beneath the angle of the jaw. The position of the knot was a matter of conjecture in these Nubian skulls, yet the causation of the lesion appeared to be so clear that it seemed possible to say in any given skull upon which side of the head the knot was placed.

In 1865 Pritchard was executed for his crimes, and in February, 1912, his skull was described by Dr. G. H. Edington. From the lesion shown in this skull (a lesion identical with that in the Nubian series) one felt justified in further discussion in stating as an assumption that the knot had been placed far back upon the jaw, as it clearly seemed to have been in the Nubian series. It also seemed to be a just assumption that the knot in Pritchard's case was placed upon the right side. It has recently come to my knowledge that a medical man who actually witnessed the execution can corroborate this assumption. He noted the position of the knot, and standing to the right of the scaffold he "distinctly remembers that the criminal's head lay over towards the left shoulder" after the drop.

Such a knot is termed subaural, and for some reason—probably because there is little fear of it slipping—it is the favourite with hangmen; and yet from its very frequent failure to produce any lesion of the neck and to cause instantaneous death it can only be described as a very bad one. Death by fracture of the base of the skull, or, falling short of this, death by strangulation, is not an ideal method of execution; and from the evidence that has accumulated it seems to me just to say that, short of decapitation, death by subaural knot is uncertain in its rapidity, and in its mode of production.

Turning now to the second series, we have five sets of cervical vertebræ all showing an identical lesion—i.e., the fracture dislocation of the axis vertebra shown in Fig. 2. It

FIG. 2.

The lesion present in Captain C. F. Fraser's series of judicial hangings. Separation of the arch of the axis from the body; effect of a submental knot.

is to be noted that the odontoid process plays no part in producing death, but that the posterior arch of the axis is snapped clean off and remains fixed to the third vertebra, while the atlas, the odontoid process, and the anterior arch of the axis remain fixed to the skull. This lesion is produced by the violent jerk which throws the man's head suddenly backwards and snaps his axis vertebra. Death in this series of cases was uniformly instantaneous, for the spinal cord was cleanly severed by the fracture of the neck. In every instance the knot was placed "a little to the left of the chin"—i.e., was a submental knot, or as near submental as the circumstances allowed. No more instructive illustration of the action of the submental knot could be furnished than that given in this series of Captain Fraser.

For a long while the facts here mentioned have been known in an indefinite way. The submental knot was strongly advocated to, and apparently approved by, the Committee on Capital Sentences in 1886, but it was not made a recommendation in its resolutions. It is used by medical officers upon whom the duty devolves in outlying stations, but it is not the English official judicial method. The reason for this, I think, is clear. Men were at one time hanged by the neck until they were dead—i.e., strangled; and at that time, as many old prints depict, the knot was suboccipital. With the introduction of the "drop" in 1818 this knot was found unsuitable, and a subaural knot was used. I imagine that these series of lesions will show clearly what many have advocated for years, that the submental knot should now supersede the subaural knot in our English judicial hangings.

A CENTENARIAN.—According to the *Westminster Gazette*, Mrs. Ann Lacy, of Ramsgate, who celebrated the anniversary of her 100th birthday on Dec. 29th, has received a message of congratulation from the King. Except for deafness and failing sight, she enjoys good health.

SOME KITCHEN EXPERIMENTS WITH ALUMINIUM.

(FROM THE LANCET LABORATORY.)

ALUMINIUM may be called a modern metal. It first saw the light early in the nineteenth century, but it was not until 1854 that the metal was produced in serious quantity by the electrolysis of the fused chloride. The first manufactory in England was started in 1859, when the raw material was cryolite, a double fluoride of aluminium and sodium. Very little advance, however, was made in the manufacture of aluminium until metallic sodium was produced cheaply by an electrolytic process. To-day aluminium is produced by direct electrolytic action in the presence of carbon. The double fluoride of aluminium and sodium, known as cryolite, is fused by electrical heating, and the oxide of aluminium is pitched into the fused mass. The alumina yields its oxygen to the carbon and fluid aluminium results, which collects at the bottom of the molten bath where it is tapped off. The raw material, therefore, is the oxide which is obtained by calcining bauxite, a silicate of aluminium found at Baux and in the Var (S. France), in Austria also, as well as the United States and New South Wales. On treating crushed calcined bauxite with caustic soda an aluminate of soda is formed from which alumina may be precipitated by carbonic acid gas or, which is now the more usual process, by the addition of alumina itself. The most important point in this process is the removal of silica, which in the form of silicon combines with aluminium. In course of time the silicon, if not removed, may oxidise and "pit" the metal. The purest aluminium is that obtained by the electrolytic method, the product containing over 99 per cent. of pure metal, while the impurities of the metal made by the sodium reduction process may amount to 2 or 3 per cent., consisting generally of iron, copper, and silicon. The pure metal is much less likely to be acted upon by corroding substances than the metal which contains foreign impurities. In 1906 aluminium ingots commanded a price of £200 per ton, but a few years later the price fell to £65, around which figure it at present fluctuates. The improvements which have been effected in the manufacture of aluminium during recent years have led to a wide application of the metal in the arts and industries, and whereas the output could be measured 20 years ago in a few tons, at the present time it is measured in many thousands. The light silvery metal is now, in fact, familiar to everyone. It is a most valuable constituent of alloys; it has come as a boon to motor vehicle manufacturers; it forms the basis of a permanently bright metallic paint; it is used with advantage in surgical and optical instruments, pencil cases, and so forth; and lastly, it has reached our kitchens in the form of pots and pans.

KITCHEN AND LABORATORY EXPERIMENTS.

In the present article it is the pots and pans with which we propose to deal—in regard, that is to say, to the question of the suitability of aluminium as a material for the utensils commonly used in culinary purposes. Experiments were made bearing directly on the question as to whether aluminium is appreciably acted upon by the usual articles of food or by the usual aids employed in the preparation of food when it is treated in the kettle, frying-pan, or saucepan. If the aluminium of these utensils is acted upon, injury to health ensuing upon the consumption of food so contaminated is assumed. The extent of such injury and the directions which it might take form a pathological question not here dealt with.

We have paid little attention to the general chemical behaviour of aluminium. That has long ago been determined and the chemical properties of the metal are well known. We have made all our experiments as in a kitchen, with aluminium kitchen utensils and commodities, reserving for the laboratory the application of tests upon the various food materials cooked or heated in the aluminium pot or pan.

Water and aluminium.—In spite of the strong affinity which it has for oxygen *pure* aluminium is unaffected by water, cold or boiling. When either the metal or the water contains impurities some corrosion may take place. In our experiments we found that when water was boiled in an aluminium saucepan purchased at the shop of an ordinary retail dealer there was slight discolouration of the metal and the surface lost its lustre slightly, but there was no evidence whatever of a soluble salt of aluminium being present in the fluid, nor could any suspended particles of oxide be observed. When, however, the saucepan was left for 24 hours with cold water in it there were signs of "sweating" of a white gelatinous substance, which on examination proved to contain alumina and silica.

Aluminium and common salt.—A 1 per cent. solution of common salt in tap water was boiled in a clean aluminium saucepan for several hours. There was a distinct darkening of the metallic surface, but on careful testing for aluminium there was not a trace found in solution, nor was there any evidence of suspended aluminium impurities in the water. On leaving the weak solution in the saucepan overnight there were noticed several white gelatinous growths on the edge of fluid where the aluminium was in contact both with salt water and air. These growths contained alumina and silica.

Aluminium, water, and acetic acid.—Acetic acid is the chief constituent of vinegar, and it was of interest to determine whether that valuable adjunct to cooking had any effect upon aluminium. Water containing 1 per cent. of the acid was placed in a clean aluminium saucepan and left boiling in it for several hours, the volume of the liquid lost in evaporation being made up from time to time by adding more water and acid. There did not appear to be any corrosive action at all, the surface of the metal remained bright, the liquid did not contain soluble aluminium salts, and there were no signs of insoluble salts being suspended in the water.

Aluminium, water, acetic acid, and common salt.—The addition of common salt to water containing acetic acid did not appear to cause any action upon the metal. There was no darkening of a clean aluminium saucepan, but after several hours' boiling the salt and acid solution proved to contain traces of soluble aluminium salt. The quantity shown, however, was so small that no hygienic importance can be attached to it. On leaving the pan in contact with its contents, and in the cold, for a night, some soft white aluminium rust appeared in several places, and the metal was pitted.

Aluminium and tartaric acid.—Tartaric acid, or either of its congeners—citric acid and malic acid—occurs in many fruits and vegetables, and therefore a weak solution of the acid in water was tried. After boiling several hours in a clear aluminium saucepan no corrosive action was noticeable, there was not a trace of soluble aluminium salt in the water, and there was no suspended matter containing aluminium. On leaving the pan and its contents at rest for 24 hours patches of white aluminium rust appeared.

Aluminium, common salt, and tartaric acid.—With a weak solution of tartaric acid and salt the aluminium saucepan remained clean and apparently unaffected, but on testing the fluid traces of aluminium salt were found. The quantity found, however, was again too small to possess any hygienic significance. The same results were obtained when citric acid was used in the place of tartaric acid. After several hours left in the cold there were signs of the aluminium being attacked.

Aluminium and carbonate of soda.—Even with quite weak solutions of carbonate of soda (as little as 1/100th per cent.) aluminium is affected, the surface of the saucepan showing distinct darkening, and the solution responding decidedly to the tests for the metal. It is generally admitted that common soda attacks aluminium, and although it is doubtful whether even in that case the aluminium would prove injurious to the organism, it is desirable to exclude alkaline soda salts in cooking operations in which aluminium vessels are used. We noticed that in the price lists of aluminium goods the warning is generally issued that soda should not be used.

Bacon fried in an aluminium frying-pan.—A slice of "streaky" bacon was fried in an aluminium frying-pan. At the end of the process there was no discolouration of the metal. The fat was poured off and ignited in a platinum basin and the residue obtained and dissolved in hydrochloric acid. The acid solution was tested for alumina. The results were negative, but the solution contained lime salts derived from the meat. These must be carefully separated before testing for alumina.

Beefsteak fried in an aluminium frying-pan.—In this case there was again no discolouration of the metal or signs of corrosion. The solution of the ash in hydrochloric acid proved, however, to contain distinct traces of alumina, besides lime salts. The quantity of alumina indicated, however, was negligibly small.

Tomatoes, butter, salt, and pepper fried in an aluminium frying-pan.—The ingredients were fried until the tomatoes were completely cooked. The contents were then transferred to a platinum basin and ignited. The pan showed no discolouration. The ash was dissolved in hydrochloric acid and tested for alumina, but there was only a slight indication of soluble salts of aluminium being present. An abundance of calcium salts and phosphates was found. This experiment clearly introduced an organic acid (citric acid) with salt, in spite of which there was but a faint action upon the aluminium. In an experiment previously recorded, in which tartaric acid and salt were used, traces of aluminium were dissolved.

Soup prepared in an aluminium saucepan.—To some water in the saucepan were added beef extract, carrots, onions, salt, pepper, and vinegar to represent a soup, and the whole was simmered for an hour or so. The liquor was poured off, evaporated to dryness, and the residue ignited. The rest was dissolved in hydrochloric acid and the solution tested for alumina. Mere traces of alumina were found, but a considerable proportion of phosphate of lime derived from the foods.

Onions boiled in water with salt and pepper in an aluminium saucepan.—The ingredients were thoroughly boiled together for an hour or so and the liquor transferred to a platinum basin, evaporated, and ignited. The ash was dissolved in hydrochloric acid and examined for aluminium salts. There was not the slightest response to the tests, and lime salts were absent.

Carrots boiled in an aluminium saucepan.—The vegetables were boiled until softened. The liquor on testing gave no evidence at all of dissolved aluminium, and there were no signs of discolouration of the metal or corrosion.

Brussels sprouts boiled in an aluminium saucepan.—In the first experiment with brussels sprouts the vegetables were boiled until tender in water without any additions. There was no discolouration or visible corrosion of the metal, but the liquor on testing showed just traces of aluminium. When the same experiment was repeated, but with the addition of a little carbonate of soda (a common culinary custom, we believe), there were signs of the metal being attacked, and aluminium was found in small quantities in the liquor. The corrosive action of carbonate of soda on aluminium is therefore not prevented by the vegetables.

Apples boiled in an aluminium saucepan.—Apples were chosen to give examples of the effect (if any) of fruit juices upon aluminium. There was no discolouration of the metal or visible sign of corrosion. On evaporating some of the liquor to dryness and igniting the residue a small but quite negligible quantity of aluminium was found when this residue was dissolved in hydrochloric acid.

CONCLUSIONS.

The experiments on the whole show no serious count against aluminium. This metal, at all events, does not appear to be more susceptible to the action of water and foods in the process of cooking than does iron, which has been used from time immemorial as the material of cooking pans. As is well known, iron rusts very readily in the presence of water and air, while also it is attacked by organic acids. It is also well known that iron salts in large quantities are injurious to the organism, as are also large quantities of aluminium salts, as, for example, alum (the double sulphate of aluminium and potassium or ammonium), and aluminium chloride. But there is no evidence to show that in the ordinary cooking operations of every-day practice either iron or aluminium is so strongly attacked as to produce an objectionable amount of soluble salts. All that can be found, when even organic acids and mineral salts are present in the cooking pan, are the merest traces of metal in a soluble state. The alumina precipitated by ammonia in the tests was in practically all cases an unweighable quantity. The case is different when an alkali is present. Carbonate of soda, for example, is without action upon iron, but it certainly attacks aluminium freely, and it would be well to exclude that salt from an aluminium cooking utensil, although even in this case it is doubtful whether any injury to health would be done. The makers of aluminium cooking vessels are fully aware of this action, and, as has been said, they commonly issue a notice warning the possessors of aluminium vessels not to use carbonate of soda, which, after all, is not indispensable to cooking processes.

A considerable number of experiments has been made concerning the action of water upon aluminium, chiefly in connexion with the suggestion that the metal might be used in the making of the water-bottles and mess-tins of the soldier, with the advantage which its lightness would give compared with all other materials hitherto put to similar use. At first the question of expense was a formidable objection to the idea, and later the experiments were unsatisfactory owing to the impurities present in the aluminium early put upon the market. The first objection has disappeared and with it a purer aluminium containing less than 2 per cent. of impurities has been commercially produced. At the present time aluminium is universally used in the manufacture of water-bottles for soldiers and other composite bodies of workers. But certain precautions are necessary in order to keep aluminium vessels suitable and hygienic for the purpose, the chief of which is that water should not be left in the bottle when it is not in use. This is in accordance with the findings of our experiments, for it was shown that there is a tendency for wet aluminium to oxidise when left freely in contact with air. It may be desirable, also, not to scour the vessels to such an extent as to remove any thin coating which forms on the surface, for this coating subsequently becomes protective. When not in use it is obvious that aluminium vessels should be kept perfectly dry and free from dust, and a film of hydrocarbon oil effectually protects the metallic surface against the combined action of moisture and air. The same precautions apply equally to iron pots and pans, but in this case it is generally forced upon the attention of the user, as any neglect to keep the pans clean and dry means an unsightly, reproachful, rusty pan. In the experiments recorded we, as a matter of fact, scoured the pans with silver sand for each experiment, which thus exposed a fresh surface each time so that the conditions were such as to favour a corrosive action, in spite of which no action of serious hygienic importance occurred.

We are confident that aluminium, as it is now made by reputable manufacturers, is a suitable material for cooking vessels, and that any suspicion that it may communicate poisonous qualities to food in the process of cooking may safely be dismissed in view of the results of the practical experiments which we have recorded, showing that the metal is not appreciably acted upon in cooking operations. This finding is satisfactory also inasmuch as aluminium is an excellent heat conductor; cooking in aluminium vessels is therefore rapid and fuel is economised in consequence. But the management of aluminium cooking utensils requires the same ordinary applications of common sense as are customary in the case of other metals employed for a similar purpose.

RESEARCH DEFENCE SOCIETY.—This society has opened a bureau at 171, Piccadilly (opposite Burlington House), London, for the exhibition of pictures and specimens and the distribution of literature. The report of the Royal Commission on Vivisection said:—

> We desire to state that the harrowing descriptions and illustrations of operations inflicted on animals, which are freely circulated by post, advertisement or otherwise, are in many cases calculated to mislead the public, so far as they suggest that the animals in question were not under an anæsthetic. To represent that animals subjected to experiments in this country are wantonly tortured would, in our opinion, be absolutely false.

The society was founded to make generally known the facts as to experiments on animals in this country and the regulations under which they are conducted, the immense importance of such experiments to the welfare of mankind, and the great saving of human and animal life and health which is already due to them. All communications should be made to the honorary secretary, Mr. Stephen Paget, 21, Ladbroke-square, London, W.

Public Health.

REPORTS OF SCHOOL MEDICAL OFFICERS.

County Borough of Blackburn.—Dr. Alfred Greenwood has produced a voluminous report crammed with pages of statistics and very difficult to read. There is not enough explanatory matter to "carry" all the tables, which are in themselves very interesting. One useful table, for which explanatory matter is desirable, is that showing the occupations of the 1681 half-timers registered. Of these, 1540 work in the mills, 15 in rope works, 16 in underclothing factories, 13 in toffee works, 47 as errand boys, 12 as domestics (girls), and the rest in varied occupations. But we are not told of the bearing of the occupations on health and progress in school, although tables of heights and weights in different classes of half-timers and in non-half-timers are given. And we are not given help in the interpretation of comparisons. An interesting case of altered handwriting caused by hysterical tremor in a girl aged 11 years is quoted and specimens of the handwriting given. The case was cured by suggestion. Otherwise no direct treatment of defects has been carried out by the Blackburn education authority, but parents are interviewed and further examination of cases seen at school are made on Wednesday afternoons.

West Riding County Council.—Dr. James Robert Kaye presents a thoroughly useful report with matter likely to be of considerable use to other school medical officers. The paragraphs dealing with "heart and circulation" have a particular value, as perhaps not even yet is it fully realised how the chief causal factor—rheumatism—can be dealt with from a school hygienist's and public health point of view. One of the medical inspectors, Dr. A. A. Jubb, is quoted as agreeing in the belief "that valvular or organic disease of the heart is more common among the children of the poorer classes than among those of the well-to-do." The percentages of heart defect in age-groups 5, 7, 10, and 13 are given as 1·96, 2·26, 2·92, and 3·24, quoted from the 1910 report and showing the increasing liability with increasing age. As the attacks of rheumatism are so often indefinite, sometimes marching "under the broad umbrella of 'influenza' ..... it is important that we should consider first principles in the prevention of rheumatism—that is, attention to proper housing, clothing, and home conditions generally." Of the West Riding children examined only 0·39 per cent. showed evidence of phthisis. An experimental scheme of treatment of ringworm cases in school was carried out on 70 cases over a period of six months; 28 were cured in this period, and many almost cured. The experiment was conducted in two schools, in neither of which was there any spread of the disease. No school nurses, health visitors, or school clinics exist, but much excellent work has been done by getting into close touch with the parents. But Dr. A. Richmond, of the central staff, established a temporary eye-testing station in nine districts and prescribed for 292 scholars, while under an arrangement with a firm of opticians altogether 509 children were supplied with glasses at prices varying from 1*s.* 4*d.* to 2*s.* 10*d.* per pair. As the majority of the children in school had undergone inspection in previous years, it was possible to examine an extra large number of non-routine cases. The routine cases (age-groups 5 and 13) were 43,158 in number, the non-routine 30,431, of whom no less than 10,114 were selected by inspectors on making grouped reviews. That most valuable institution "the parade" is coming to its own.

VITAL STATISTICS

HEALTH OF ENGLISH TOWNS.

IN the 95 largest English towns, with an aggregate population estimated at 17,639,881 persons at the middle of 1912, 5930 births and 5121 deaths were registered during the week ended Saturday, Dec. 28th, 1912. The annual rate of mortality in these towns, which had declined from 16·4 to 15·4 per 1000 in the three preceding weeks, further fell to 15·1 per 1000 in the week under notice. During the 13 weeks of the quarter just ended the mean annual death-rate in these large towns averaged 14·5 per 1000, against 15·0 in London during the same period. The death-rates in the several towns last week ranged from 5·6 in Ealing, 5·8 in Eastbourne, 7·0 in Southend-on-Sea, 7·2 in Enfield, and 7·4 in Wimbledon and in Southport, to 21·0 in Middlesbrough, 21·1 in Newcastle-on-Tyne, 22·6 in Barrow-in-Furness, 24·4 in St. Helens and in Sunderland, and 26·6 in Preston.

The 5121 deaths from all causes in the 95 towns were 101 fewer than the number in the previous week, and included 546 which were referred to the principal epidemic diseases, against numbers declining from 601 to 542 in the three preceding weeks. Of these 546 deaths, 336 resulted from measles, 65 from infantile diarrhœal diseases, 59 from whooping-cough, 52 from diphtheria, 21 from scarlet fever, and 13 from enteric fever, but not one from small-pox. The mean annual death-rate from these epidemic diseases last week was equal to 1·6, against 1·7 and 1·6 per 1000 in the two preceding weeks. The deaths attributed to measles, which had been 366, 366, and 321 in the three preceding weeks, rose to 336 last week, and caused the highest annual death-rates of 3·3 in West Hartlepool, 4·1 in Grimsby, 4·8 in St. Helens and in Barrow-in-Furness, 5·0 in Stockton-on-Tees, 5·2 in South Shields, and 8·9 in Preston. The deaths of infants under 2 years of age referred to diarrhœa and enteritis, which had been 75, 68, and 79 in the three preceding weeks, declined to 65 last week, and included 22 in London and its suburban districts, 7 in Manchester, 5 in Liverpool, 4 in Birmingham, and 3 in Salford. The fatal cases of whooping-cough, which had been 55, 49, and 64 in the three preceding weeks, fell to 59 last week; of this number 22 were registered in London and its suburban districts and 3 each in Stoke-on-Trent, Lincoln, Warrington, Blackburn, and Rhondda. The deaths attributed to diphtheria, which had been 54, 39, and 42 in the three preceding weeks, rose to 52 last week; 9 deaths were recorded in London, 4 in Stoke-on-Trent, 4 in Sheffield, and 3 each in Portsmouth, Birmingham, and Leeds. The deaths referred to scarlet fever, which had been 28, 23, and 27 in the three preceding weeks, declined to 21 last week, and included 5 in London, 4 in Birmingham, 3 in Liverpool and 2 in Bath. The fatal cases of enteric fever, which had declined from 23 to 9 in the three preceding weeks, rose to 13 last week, and included 3 in London and 2 in Rotherham.

The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had steadily declined from 2336 to 2108 in the five preceding weeks, were 2112 on Saturday last; 191 new cases of this disease were admitted to these institutions during the week, against 285, 248, and 193 in the three preceding weeks. These hospitals also contained on Saturday last 965 cases of diphtheria, 774 of measles, 242 of whooping-cough, and 39 of enteric fever, but not one of small-pox. The 1249 deaths from all causes in London were 3 fewer than the number in the previous week, and were equal to an annual death-rate of 14·4 per 1000. The deaths resulting from diseases of the respiratory system, which had been 324, 345, and 285 in the three preceding weeks, were 287 last week, and were 45 below the number recorded in the corresponding week of last year.

Of the 5121 deaths from all causes in the 95 towns last week, 194 resulted from different forms of violence and 423 were the subject of coroners' inquests. The causes of 55, or 1·1 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of deaths were duly certified in Manchester, Leeds, Bristol, West Ham, Bradford, Hull, Newcastle-on-Tyne, Nottingham, and in 65 other smaller towns. The 55 uncertified causes of death last week included 13 in Birmingham, 12 in Liverpool, 3 in St. Helens, and 2 each in Gillingham, Grimsby, Warrington, Preston, Barrow-in-Furness, Darlington, West Hartlepool, and Tynemouth.

HEALTH OF SCOTCH TOWNS.

In the 18 largest Scotch towns, with an aggregate population estimated at 2,182,400 persons at the middle of 1912, 1022 births and 714 deaths were registered during the week ended Saturday, Dec. 28th, 1912. The annual rate of mortality in these towns, which had declined from 22·0 to 19·2 in the three preceding weeks, further fell to 17·1 per 1000 in the week under notice. During the 13 weeks of the quarter just ended the mean annual death-rate in these

Scotch towns averaged 16·6, against 14·5 per 1000 in the 95 large English towns during the same period. Among the several Scotch towns the death-rates last week ranged from 4·7 in Ayr, 10·3 in Kirkcaldy, and 11·9 in Hamilton, to 18·9 in Glasgow, 19·9 in Falkirk, and 20·8 in Dundee.

The 714 deaths from all causes were 87 fewer than the number in the previous week, and included 43 which were referred to the principal epidemic diseases, against 49 and 61 in the two preceding weeks. Of these 43 deaths, 18 resulted from whooping-cough, 8 from infantile diarrhœal diseases, 6 from scarlet fever, 5 from diphtheria, 3 from measles, 2 from enteric fever, and 1 from small-pox. These 43 deaths from the principal epidemic diseases were equal to an annual death-rate of 1·0, against 1·6 per 1000 in the 95 large English towns. The deaths attributed to whooping-cough, which had steadily risen from 7 to 29 in the four preceding weeks, declined to 18 last week, and included 7 in Glasgow, 3 in Edinburgh, 2 in Motherwell, and 2 in Clydebank. The deaths of infants under two years of age referred to diarrhœa and enteritis, which had averaged 13 in the four preceding weeks, fell to 8 last week; 3 deaths occurred in Aberdeen and 2 in Glasgow. The fatal cases of scarlet fever, which had been 3, 6, and 4 in the three preceding weeks, rose to 6 last week, 4 of which were registered in Glasgow. The deaths attributed to diphtheria numbered 5 last week, and were 2 below the average in the four preceding weeks; 3 deaths were recorded in Glasgow and 2 in Dundee. The 3 deaths referred to measles last week occurred in Glasgow, the 2 fatal cases of enteric fever in Glasgow and Edinburgh respectively, and that of small-pox in Kirkcaldy.

The deaths referred to diseases of the respiratory system in the 18 Scotch towns, which had declined from 249 to 194 in the three preceding weeks, further fell to 170 in the week under notice; 30 deaths were attributed to different forms of violence, against 31 and 27 in the two previous weeks.

HEALTH OF IRISH TOWNS.

In the 22 town districts of Ireland, having an estimated population of 1,154,150 persons at the middle of 1912, 344 births and 341 deaths were registered during the week ending Saturday, Dec. 28th, 1912. The annual rate of mortality in these towns, which had been 22·0, 18·4, and 20·6 per 1000 in the three preceding weeks, fell to 15·4 per 1000 in the week under notice. During the 13 weeks of the quarter just ended the mean annual death-rate in these Irish towns averaged 18·1 per 1000; during the same period the corresponding rate in the 95 large English towns did not exceed 14·5, while in the 18 Scotch towns it was equal to 16·6 per 1000. The annual death-rate in the several towns last week was equal to 14·2 in Dublin (against 14·4 in London), 19·3 in Belfast, 16·3 in Cork, 8·9 in Londonderry, 5·4 in Limerick, and 7·6 in Waterford, while in the remaining 16 smaller towns the mean rate was equal to 14·1 per 1000.

The 341 deaths from all causes in the 22 Irish towns were 116 fewer than the number in the previous week, and included 41 which were referred to the principal epidemic diseases, against 49 and 60 in the two preceding weeks. Of these 41 deaths, 25 resulted from measles, 6 from diarrhœal diseases, 4 from whooping-cough, 4 from diphtheria, and 2 from scarlet fever, but not one from enteric fever or from small-pox. These 41 deaths from the principal epidemic diseases were equal to an annual death-rate of 1·9 per 1000; the death-rate from these diseases last week in the 95 large English towns was equal to 1·6, while in the 18 Scotch towns it did not exceed 1·0 per 1000. The deaths attributed to measles, which had declined from 29 to 24 in the four preceding weeks, were 25 last week, of which number 23 were registered in Belfast. The deaths referred to diarrhœa and enteritis, which had been 11, 7, and 17 in the three preceding weeks, declined to 6 last week, and included 4 of infants under 2 years of age; 5 deaths were recorded in Belfast and 1 in Tralee. The 4 fatal cases of whooping-cough last week were equal to the average in the three preceding weeks; 2 deaths occurred in Dublin, 1 in Belfast, and 1 in Lisburn. The 4 deaths attributed to diphtheria were equal to the number in the previous week, and comprised 3 in Dublin and 1 in Cork. The 2 fatal cases of scarlet fever were recorded in Lurgan.

The deaths referred to diseases of the respiratory system in the 22 Irish towns, which had been 108, 94, and 96 in the three preceding weeks, fell to 85 in the week under notice. Of the 341 deaths from all causes, 95, or 28 per cent., occurred in public institutions, and 8 resulted from different forms of violence. The causes of 10, or 2·9 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the 95 large English towns the proportion of uncertified causes of death last week did not exceed 1·1 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments have been notified:—Fleet-Surgeons: W. G. Axford to Chatham Hospital; H. W. Gordon-Green to the *King George V.*; H. B. Beatty to the *Cambrian* and for General Staff duties; G. R. MacMahon to the *Drake*; E. T. P. Eames to the *Penguin*, additional, for R.N. College, Greenwich; and R. W. Stanistreet to the *Intrepid*. Staff-Surgeons: C. C. MacMillan to the *Bristol*; and S. H. Facey to the *Indomitable*.

ROYAL ARMY MEDICAL CORPS.

Captain Thomas J. Potter to be Major (dated Dec. 27th, 1912).

Colonel H. J. Barrett, on return to India at the expiration of leave of absence home, has been selected for appointment as Assistant Director of Medical Services to the Bareilly, Garhwal and Dehra Dun Brigades, in succession to Surgeon-General L. E. Anderson, transferred to the Home Establishment.

Lieutenant-Colonel H. H. Brown, on arrival home from Aden, tour expired, has been appointed to hold charge of the Military Hospital at Newcastle. Lieutenant-Colonel H. A. Bray has been transferred from Woolwich for duty with the Egyptian Army. Lieutenant-Colonel T. Daly has taken up duty at Chester in charge of the Military Hospital and Senior Medical Officer of the North-Western Coast Defences. Lieutenant-Colonel M. O'D. Braddell has been selected for appointment as Senior Medical Officer on board the transport s.s. *Dufferin*, leaving Karachi for Southampton on Jan. 23rd. Lieutenant-Colonel H. E. Cree has been selected for appointment to hold charge of the Military Hospital at Sialkot.

Major A. M. MacLaughlin, lately specialist sanitary officer in the Scottish Command, has taken up duty in India. Major G. J. A. Ormsby has been selected for appointment as Senior Medical Officer at Landour and to command the Military Hospital at that station for the current year. Major R. Tilbury Brown, deputy assistant director of Medical Services, Sanitary Branch, has been placed under orders for transfer from Maymyo, Burma, to the Eighth (Lucknow) Division of the Southern Army in India. Major J. C. Connor has been appointed to hold charge of the Military Hospital at Wellington. Major W. S. Crosthwait has been appointed for duty with the Third (Lahore) Division in India. Major M. P. Corkery has been appointed to the Irish Command for duty on arrival home from India, tour expired. Major J. H. Brunskill, specialist in bacteriology at the Curragh Camp, has been selected for appointment as Specialist Sanitary Officer to the Dublin District, in succession to Major D. J. Collins, whose tenure of the appointment has expired. Major B. F. Wingate has taken over Medical Charge of the Military Hospital at Bellary, Madras Presidency, on transfer from Wellington. Major S. F. St. D. Green, specialist in midwifery and gynæcology, has left the Aldershot Command for a tour of duty in India.

Captain V. G. Johnson, serving at Nowshera, and Captain A. C. Elliott, serving at Rawal Pindi, have been appointed for duty on board the transport s.s. *Dongola*, which left Bombay for Southampton on Dec. 20th. Captain P. C. T. Davy has arrived home for duty from Jutogh, Simla Hill District, Northern India. Captain P. Sampson, on return from India, tour expired, has been appointed to the Irish Command for duty. Captain G. A. D. Harvey has been

selected for appointment as Specialist in Physical Training at the Royal Army Medical College, Grosvenor-road, S.W., in succession to Captain N. Dunbar Walker, who has been placed under orders for service in Northern India, with the Fourth (Quetta) Division. The following officers have joined at the Royal Army Medical College, Grosvenor-road, S.W., for the promotion courses to the rank of Major: Captains C. J. Coppinger (from Limerick), R. G. Meredith (Lichfield), F. E. Roberts (Edinburgh), T. H. Gibbon (Canterbury), J. E. Hoar (Dundalk), H. O. M. Beadnell (Trawsfyndd), C. W. O'Brien (Kilbride), J. M. B. Rahilly (Woolwich), R. E. Humfrey (Curragh Camp), W. G. Maydon (Aberdeen), and G. Ormrod (Holywood). Captain G. B. F. Churchill, on return from service in Burma, has been appointed for duty in the Southern Command. Captain C. A. T. Conyngham has arrived home on leave of absence from Quetta. Captain D. B. McGrigor has been granted six and a half months' leave of absence home from India. Captain E. C. Caddell, specialist in the prevention of disease, has been appointed to hold charge of the Bacteriological Research Laboratory at Brigade Headquarters, Karachi. Captain F. W. Lambelle, specialist in advanced operative surgery to the Fifth (Mhow) Division, has been placed under orders for transfer to Burma for duty. Captain A. H. Jacob has joined the Irish Command on arrival home from Rawal Pindi. Captain B. A. Craig has taken up duty at Newcastle as Adjutant of the Royal Army Medical Corps School of Instruction, Northumbrian Division. Captain H. St.M. Carter has been appointed Surgical Specialist to the Royal Victoria Hospital, Netley. Captain W. H. S. Burney has embarked for a tour of service in India. Captain V. T. Carruthers has taken over Medical Charge of the Troops stationed at Spike Island, Cork District. Captain G. B. Edwards has been appointed to hold charge of the Military Families Hospital at Bulford Camp, Salisbury Plain.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel R. J. Macnamara has taken up duty in Madras as Inspector-General of Prisons in Madras Presidency. Lieutenant-Colonel B. B. Grayfoot has taken up duty as Assistant Director of Medical Services to the Derajat and Bannu Brigades, in succession to Colonel D. St. J. Grant, transferred. Lieutenant-Colonel C. A. Johnstone has received an extension of his leave of absence. Lieutenant-Colonel J. L. T. Jones has been appointed Assay Master at Bombay. Lieutenant-Colonel E. C. Hare, Sanitary Commissioner to the Provinces of Bihar and Orissa, has been granted leave of absence for two months. Lieutenant-Colonel T. E. Dyson has been granted one month's extension of his leave of absence home from India.

Major C. B. Prall has taken up duty at Lucknow, on return from leave of absence, as Superintendent of the Central Prison. Major W. G. Liston has been placed on special duty under the orders of the Director-General of the Indian Medical Service. The services of Major E. L. Ward have been replaced at the disposal of the Government of the Punjab. Major C. W. F. Melville has arrived home on leave of absence from India. Major A. A. Gibbs, medical storekeeper to the Government of India at Lahore Cantonment, has been granted privilege leave of absence for 31 days. Major C. H. Bensley, officiating superintendent of the Central Jail at Nagpur, has been appointed Superintendent of the Central Jail at Jubbulpore, in succession to Major G. Y. C. Hunter. Major H. Innes, civil surgeon in the Khasi and Jaintia Hill District, has been appointed to officiate as a Civil Surgeon of the First Class, in succession to Lieutenant-Colonel E. R. W. C. Carroll on leave of absence. The services of Major W. H. Cox, D.S.O., have been placed at the disposal of the Government of Burma. Major W. E. McKechnie, civil surgeon at Etawah, has been granted one month's privilege leave of absence. Major C. C. Murison has relinquished charge of the office of the Deputy Sanitary Commissioner, Gujarat Registration District, on being relieved by Lieutenant-Colonel T. Jackson. Major W. Lethbridge has arrived home on leave of absence from India. Major W. Lapsley has taken up duty as Civil Surgeon at Azamgarh on return from leave of absence.

Captain R. D. Saigol has been appointed to officiate as Police Surgeon and Pathologist to the General Hospital at Rangoon, in succession to Captain H. B. Scott, transferred. Captain S. H. Lee Abbott has taken up charge of the duties of the Superintendent of the Ferozopore District Jail. Captain F. P. Wernicke, on general duty at Nagpur, has been appointed to officiate as Civil Surgeon at Hoshangabad. Captain R. D. Willcocks has arrived home on leave of absence from India. Captain F. C. Fraser, on return from furlough, has been appointed to the Madras Presidency for temporary civil employment. Captain N. M. Wilson, at present officiating as civil surgeon at Shahpur, has been selected for appointment as Plague Medical Officer at Shahpur. Captain G. L. C. Little has been granted leave of absence home from India for a period of eight months on medical certificate. Captain J. D. Sandes, lately officiating as resident physician to the Medical College Hospital at Calcutta, has been appointed to act as Resident Surgeon at that hospital. Captain H. W. Illius has been transferred from Jhansi to Rae Bareli, and appointed to officiate as Civil Surgeon. Captain A. H. Napier has arrived home on leave of absence from India. The services of Captain T. H. Gloster, specialist in the Bacteriological Department of the Government of India, have been placed temporarily at the disposal of the Government of Bombay. Captain A. T. Pridham has taken up duty at the Rangoon Central Jail. Captain J. Taylor has been placed on special duty under the orders of the Director-General of the Indian Medical Service. The services of Captain A. W. Howlett, officiating superintendent of the Central Prison at Agra, on being relieved, have been replaced at the disposal of the Home Department of the Government of India. Captain R. T. Wells, on return from leave of absence, has been appointed to officiate as Civil Surgeon at Dera Ghazi Khan, in succession to Captain H. C. Keates, transferred. Captain A. Cameron, officiating superintendent of the Central Prison at Benares, has been appointed to hold Civil Medical Charge of the Benares District, in addition to his other duties, during the absence on special deputation duty at Kasauli of Lieutenant-Colonel J. M. Crawford.

TERRITORIAL FORCE.

Royal Army Medical Corps.

3rd East Lancashire Field Ambulance, Royal Army Medical Corps: Lieutenant Kingsmill W. Jones is borne as supernumerary to the establishment whilst serving with No. 18 Field Ambulance, Royal Army Medical Corps, Special Reserve (dated Dec. 18th, 1912).

TERRITORIAL FORCE RESERVE.

Royal Army Medical Corps.

Lieutenant-Colonel Frederic Joseph Knowles, Retired List, Territorial Force (lately commanding the 1st West Lancashire Field Ambulance, Royal Army Medical Corps), to be Lieutenant-Colonel (dated Dec. 25th, 1912).

DEATHS IN THE SERVICES.

Colonel Henry John Robbins, A.M.S. (retired), at Brighton, in his sixty-eighth year. He entered the service in 1877, became surgeon-major in 1889, and surgeon lieutenant-colonel in 1897, in which year he retired on half-pay as colonel. He served in the Afghan war, 1878–9, was with the Zaimusht expedition, and was present at the capture of the heights at Zawa (medal). He was also with the Bechuanaland expedition in 1884–5.

NEW YEAR HONOURS.

Inspector-General Duncan Hilston, R.N. (retired), C.B., has been promoted to K.C.B. Major William Glen Liston, I.M.S., and Lieutenant-Colonel Walter James Buchanan, I.M.S., have been made Companions of the Order of the Indian Empire. The Kaisar-i-Hind gold medal has been awarded to Major H. W. Grattan, R.A.M.C., Major E. R. Rost, I.M.S., and Major E. L. Ward, I.M.S.

MEDICAL MAGISTRATE.—Dr. Charles James Vlieland, who was formerly Mayor of Exeter, and recently elected an alderman of the council, has had his name added to the commission of the peace for the city of Exeter.

Correspondence.

"Audi alteram partem."

SEWER AIR AND MICROBES.

To the Editor of THE LANCET.

SIR,—In an annotation in THE LANCET of Dec. 14th, 1912, p. 1670, the writer discusses certain observations reported to have been made by M. Trillat on the growth of bacteria in sewer air, or in air arising from putrefying matter, and says that the results of these observations traverse the "revolutionary doctrine" put forward by myself—to wit, that the chemical purity of the air is of no importance in regard to the question of ventilation.

If the writer re-examined my British Association address he would find that I lay stress on these factors in discussing the evil effects of confined atmospheres: (1) infection by micro-organisms; (2) light; (3) movement, relative humidity, and temperature of the air; and I maintain that the evidence is convincing and overwhelming that neither the concentration of oxygen nor of carbon dioxide in such atmospheres has anything to do with the discomfort and ill-effects felt, and that the proof for the existence of any organic poison in exhaled air (as supposed by Brown-Séquard) entirely breaks down on examination.

M. Trillat's observations, if correct, do not traverse these opinions in the least degree. It is possible that air contaminated by exhalations of sewers, &c., may favour the growth of bacteria in media, but any evidence of such must be received cautiously and submitted to stringent criticism, because, as bacteriologists well know, it is exceedingly difficult to prepare any two samples of a medium which will equally favour growth. Moreover, Mr. Shattock, in a well contrived and carefully executed research, failed to find that the toxicity of a lowly virulent strain of diphtheria bacilli, was exalted by growing the bacilli in broth over which sewer or fæcal air was passed, even though this treatment was prolonged for a period of two months.[1] Supposing such air in truth does favour growth of microbes, I ask, how can it influence infection with and growth of pathogenic bacteria in the uterus of a woman (in the state of childbirth), so as to induce in her puerperal fever? Are we to suppose that the woman, by passing flatus *ab tergo* during parturition, exalts organisms in the surrounding atmosphere and may produce in herself an infection? It is safe to maintain that puerperal fever in every case is due to infection by the unclean finger of the midwife or medical attendant. It is certain that stagnation of body heat produces discomfort and exhaustion and that continual exposure to over-warm, moist, and windless atmospheres lessens the metabolism and vigour of the body. The warm atmosphere, moreover, alters the condition of the respiratory mucous membrane no less than that of the skin, and thereby probably increases the liability to infection. There is abundant reason to think that "spray" infection from mouth to mouth or nose to nose is the one great source of our infection by the organisms which produce "colds," influenza, diphtheria and phthisis, measles, scarlet fever, &c. Was not the spread of pneumonic plague to the medical officers in China entirely prevented by the wearing of suitable respirators? Do not the sailor and Arctic explorer avoid "colds" and influenza? Do not let us ascribe to organic poisons, the existence of which in exhaled air is unproven, those ills to which man succumbs because he has deserted open-air life, a life to which his body is adapted by ages of evolution. Let us counteract the known potent sources of lessened vigour and unhappiness, inculcate the need for sunlight, moving air, and exercise, and instruct the world in the simple means which suffice to lessen "spray" infection, not forgetting infection by flies. In the same number of THE LANCET experiments are cited which show that one fly may carry 800,000 to 500,000,000 bacteria. Let us clean up our habitations to avoid fly infection and not worry over sewer gas. A phthisical patient not too ill to go about his business sprays out droplets of saliva when he coughs or speaks, and each of these may contain thousands of bacilli.

The time has come to consider whether we cannot diminish "spray" infection and lessen the spread of "colds" and influenza. If it became the custom of those infected to cough, sneeze, and speak with a handkerchief held in front of the mouth and nose, or to wear a respirator, the world might be largely rid of one of its greatest curses. The erroneous doctrine that "colds" are caused by cold does more than anything to spread the mischief.

I am, Sir, yours faithfully,

London Hospital Medical College, Dec. 23rd, 1912. LEONARD HILL.

[1] Transactions of the Pathological Society, xlix., 1898.

THE CHEMICAL EXAMINATION OF THE GASTRIC CONTENTS.

To the Editor of THE LANCET.

SIR,—There are a few points in the letter of Dr. G. Graham and Mr. R. L. Mackenzie Wallis in THE LANCET of Nov. 23rd to which we wish to refer.

With regard to the estimation of "free hydrochloric acid" by Volhard's method, one of us in THE LANCET of Oct. 19th made the statement that this was an extremely inaccurate method, as it gave in normal cases an acidity of 0·02 per cent., whereas estimations by the inversion of cane-sugar give nearly 0·10 per cent. Graham and Wallis, to some extent, support the method on the grounds that when applied to a certain solution of glucose the inaccuracy need not exceed a *minimum* of 50 per cent., thought it may be far greater. We do not think that such an argument can seriously challenge the figures obtained by the polariscopic method.

Moore's figures for free HCl estimated by the catalysis of methyl acetate also show results several hundreds per cent. higher than Volhard's method. It is evident that this method yields results which are very inaccurate and misleading to those unacquainted with gastric analyses. In the article criticised the amount of free HCl by this method is given in each case, and however little stress may have been laid upon this by the authors, the statement that the normal free hydrochloric acid is 0·02 per cent. cannot fail to be misleading to the reader.

Graham and Wallis continue by stating that we ourselves estimate free HCl by two methods, the inversion of cane sugar and Töpfer's reagent, and do so in words which suggest that we consider them of equal merit. This is entirely erroneous. Volhard's method for free HCl was attacked solely on the results given by the inversion of cane sugar, and Töpfer's reagent was not mentioned in that connexion. Graham and Wallis dismiss the inversion of cane sugar as being "impracticable for ordinary purposes." This has nothing to do with its scientific value. They then made a long attack upon us for regarding Töpfer's reagent as a quantitative test of free hydrochloric acid. We have, however, never done so, and have made it perfectly clear that we do not. In our published analyses we have always recorded the results as "dimethyl acidity" and never as "free hydrochloric acid." We have claimed that when the acidity is normal or increased it is a fairly accurate measure of free HCl. We are justified in this claim by simultaneous measurements of the inversion of cane sugar. As the acidity falls it is no longer a measure of free HCl. We fail to see how anyone who reads the letter of Oct. 19th can attribute any other views to us.

Graham and Wallis then give analyses of mixtures of peptone and HCl, from which they deduce that dimethyl reacts with protein-combined HCl. (A similar experiment is given by Töpfer in his original article, from which he concludes that his reagent is a more accurate test than Günzburg's for free HCl.) We have examined a similar mixture for the inversion of cane sugar, with the following result:—Solution: Witte's peptone, 1 gramme per cent. + 22 c.c. decinormal HCl per cent.; HCl added = 0·080; total acidity = 0·095; dimethyl acidity = 0·044; free HCl (by inversion of cane sugar) = 0·032; Günzburg's reaction negative. Solution: Witte's peptone, 0·8 gramme per cent. + 35 c.c. decinormal HCl per cent.; HCl added = 0·128; total acidity = 0·139; dimethyl acidity = 0·095; free HCl

(by inversion of cane sugar) = 0·076; Günzburg's reaction positive.

In these solutions there is no doubt that the inversion of cane sugar is due to free HCl. The error must be very small in drawing this conclusion, as the dissociation of amino-acids is slight. Thus a great proportion of the dimethyl acidity is present as free HCl, and the amount of protein-combined HCl which reacts with dimethyl, if any, must be extremely small, and is probably confined to the most advanced products of digestion. A few analyses with the formaldehyde method show that the amount of ammonia in a solution of Witte's peptone is greater than in comparable gastric contents. In gastric contents the amount of advanced degradation products is very small.

We will select at random an illustration which Graham and Wallis should consider a very great argument against the view that dimethyl reacts with protein-combined HCl. Case 4, Table 2, in Woodwark and Wallis's article of Oct. 5th gives a protein HCl of 0·084 per cent. and no reaction with dimethyl. Such analyses are common, and it must be difficult to explain them on the view that protein HCl reacts with dimethyl. The correct interpretation of the analyses given above appears to be that some substance is interfering with Günzburg's test. We were aware that substances such as dextrose could interfere with Günzburg's test for mineral acids in certain circumstances, but had not noticed this reaction. Graham and Wallis have apparently taken it for granted that this dimethyl acidity is protein HCl.

It is a mistake to say that we based our criticisms of the estimation of "active HCl" on the presence of phosphates. We arrived at the conclusion that it was inaccurate for other reasons, and in searching for the cause turned our attention to phosphates as a possible or partial explanation, and this sequence was followed in the letter of Oct. 5th. Our reasons may again be illustrated by an analysis previously quoted from a case of carcinoma of the stomach[1]: Total acidity, 0·255; dimethyl acidity, 0·105; Günzburg's reaction negative; active HCl, 0·222.

As Günzburg's reaction is negative we argued that the maximum amount of acidity due to HCl is 0·255 − 0·105 = 0·140, whereas the "active HCl" is 0·222. The contents were also extracted with ether, after which the total acidity was 0·140, and the dimethyl acidity 0·091. Graham and Wallis have not referred to these analyses. The value of the "active HCl" determination has consequently seemed to us very slight, since when the free HCl is normal or in excess the "active HCl" corresponds almost exactly with the "total acidity." When the free HCl is low or absent, as in the case just quoted, the "active HCl" may still equal or even exceed the "total acidity," yet the total acidity includes the "active HCl," the acid salts which are in such cases present in excess, and the organic acids which are likewise in considerable amount and make up, as shown by ether extraction, a fair proportion of the total acidity. How can Volhard's method be accurate in such cases? We repeat that it was in attempting to discover the cause of the inaccuracy that we investigated the interaction of phosphates and chlorides, and we consider that this interaction is a partial explanation, but not the whole explanation. Supposing the "active HCl" to be inaccurate in such cases, and we can see no other alternative, the inaccuracy will appear doubly in the ratio of metallic HCl to active HCl. We remain of the opinion that Volhard's method should not longer be quoted as a measure of free HCl, and that in many cases it is an inaccurate measure of "active HCl"; also that the evidence quoted by Graham and Wallis is no proof whatever that dimethyl reacts with protein HCl. We agree with Graham and Wallis that the presence of phosphates can only be a partial explanation of some problems of gastric analysis, and we have never expressed any other opinion. We doubt, however, whether the fact that some of the phosphorus is originally in an organic form is of much importance when the result of incineration is considered.

We are, Sir, yours faithfully,

P. N. PANTON.
H. L. TIDY.

London Hospital, E., Dec. 2nd, 1912.

*** Publication of the above letter has been inadvertently delayed.—ED. L.

[1] Analysis of Gastric Contents, Quarterly Journal of Medicine, 1911, p. 475.

THE CARRIER PROBLEM IN DIPHTHERIA.

To the Editor of THE LANCET.

SIR,—I have been interested in the letter of your correspondent Mr. H. A. Debenham, and in your annotation in THE LANCET dated Dec. 21st on this subject, and venture to think that some notes of a prolonged case of "diphtheria carrying" may be of interest to some of your readers. Particulars of the case are as follows.

In October, 1909, while acting as assistant medical officer of health of the borough of Derby, I was asked by a schoolmaster to look at one of his boys who had an offensive nasal discharge. From the history and the appearance of the boy I diagnosed the case as one of chronic rhinorrhœa, probably due to adenoids. There had, however, been a considerable amount of diphtheria in the town, and as I happened to have a swab in my pocket I took a nasal swabbing, which on examination gave an almost pure culture of the Klebs-Löffler bacillus. On the strength of this the boy was removed to the isolation hospital.

On admission to the hospital I thoroughly examined the nose and naso-pharynx, but found no evidence of adenoids. Swabbings were taken about once a fortnight from both nose and throat for a period of three months, and although the throat swab was occasionally negative, the nasal swab was constantly positive. On Jan. 29th, 1910, I sent a swab, taken from the boy's nose, to the Manchester Public Health Laboratory to be tested for virulence. The report was to the effect that the bacilli were virulent, killing a guinea-pig in 36 hours. As the swabs continued to give a positive result, another specimen, this time from the throat, was sent to Manchester on March 17th, 1910, and the report again was that the bacilli were virulent. On August 11th, 1910, although the swabs still showed typical diphtheria bacilli, they were declared non-virulent on inoculation. Despite this result, it was resolved to keep the boy in hospital if possible until swabs should show the absence of diphtheria bacilli, as he was one of a large family living in a small house and sharing a bed with two brothers. December, 1910, arrived, and still the swabs were positive. On Dec. 5th a swab was again sent to Manchester and reported non-virulent. The boy had now been in hospital 14 months and his parents were anxious to have him home, so it was decided to discharge him from hospital, but not to allow him to attend school. A swab taken from the patient's nose three months after his discharge from hospital still showed typical diphtheria bacilli.

Although this nasal discharge had been going on for several months previous to admission to hospital, it is important to note that (1) the patient had slept in a bed with two brothers, neither of whom showed any signs of diphtheria, and swabs from whom yielded negative results; (2) there had been no case of diphtheria for several months in the school attended by the patient, and on swabbing the throats of boys sitting in his neighbourhood in school all swabs were negative; and (3) no case of diphtheria occurred in the patient's home during the three months following his discharge from hospital.

About this time I left Derby and so lost sight of the case, but I understand that later on the boy returned to school and that no cases of diphtheria were traced to infection from him. I should add that during his stay in hospital all manner of throat and nose antiseptic douches, gargles, and lozenges were tried, in addition to injections of antitoxin, but all with apparently no effect as far as the presence of the bacillus was concerned, although it is possible that they had something to do with the diminution of the virulence.

This case exhibits such contradictory evidence regarding virulence of the bacilli and apparent non-infectivity that I thought it worthy of attention, as it raises an important point regarding the question of isolation of carrier cases of diphtheria.

I am, Sir, yours faithfully,

A. MIDDLETON HEWAT.

Public Health Department, County Hall, Ipswich, Dec. 23rd, 1912.

DR. STEDMAN'S "MEDICAL DICTIONARY."

To the Editor of THE LANCET.

SIR,—In the very flattering notice of my dictionary which appeared in THE LANCET of Dec. 7th, 1912, your reviewer has, I think, done me some injustice in his strictures of my choice of Greek terms, and I therefore beg the courtesy of a few lines of your valuable space for a brief apologia.

I am perfectly aware of the two rules of Greek word construction which the reviewer says I have repeatedly violated, but he seems not to know that the Greeks of the present day themselves frequently ignore these rules in their formation of compounds—so frequently, indeed, that it seems to a foreigner as though such practice could no longer be felt by them to do violence to the genius of their language. In the Greek medical literature of to-day one meets constantly the terms *γαστρεκτομία*, *ὑστερεκτομία*, *νεφρεκτομία*, *σπληνεκτομία*, &c.—all coming under the reviewer's condemnation in that a preposition is included in a compound word between two nouns. Contrary to the rule that compound abstract nouns take the termination *ια* are the formations *ἀρτηριοσκλήρωσις*, *καρδιοσκλήρωσις*, *ἐντερόπτωσις*, repeatedly encountered in Greek medical writings, and similar in their form to cardiomyoliposis, to which exception is taken in the review. The word *δερμοαντίδρασις* (cutaneous reaction), which occurs in the title and body of an article in Γαληνός (a medical journal of Athens) of Oct. 1st, 1912, violates both the canons upon which your reviewer bases his criticism, yet the word expresses the idea exactly, and it is difficult to see how it could be bettered. He asks: "Again, when preferentially indicating terms, why is steatosis (Greek) to be preferred to adiposis (Latin) for association with the Latin 'cor'?" The reason is that steatosis is pure Greek, whereas adiposis is a barbarous formation of a Latin stem (adeps) with a Greek termination (osis). It is surely less objectionable that two consecutive words should be from different languages in their derivation than that the two parts of one word should be so related.

I enclose some clippings from *Galenos* in substantiation of the assertion here made regarding the common employment of many of the terms mentioned. The only way a foreigner can judge of the instinct of a language which he cannot feel in himself is by studying the usage of native writers. Purists in Greece may condemn the employment of all these terms, but the words are used by educated writers in scientific journals and medical treatises, and they evidently satisfy the authors, the editor, and the readers—so far be from me the temerity to attempt the instruction of the Greek in the use of his mother tongue.

For the other criticisms of the work, some (not all) of which I shall hope to profit by in future revisions, I am profoundly grateful, as I am also for the honour you have given the dictionary by so extended a review, and for the all too flattering personal references therein contained.

I am, Sir, your faithfully,

New York, Dec. 20th, 1912. THOMAS L. STEDMAN.

*** We publish Dr. Stedman's letter with pleasure, but the articles in *Galenos* are not written by Greeks.—ED. L.

SCHOOL CLINICS.

To the Editor of THE LANCET.

SIR,—The Insurance Act ought not to be allowed to divert attention from what is taking place under the Education Acts. I enclose you a portion of a local paper from which you will see that an education committee has decided to appoint a whole-time dental surgeon at £250 a year and a part-time ophthalmic surgeon, and that the proposal to appoint a throat and ear surgeon was "referred back." Now only 4 per cent. of the children in the country are being educated at the expense of their parents, the 96 per cent. being in elementary schools or in institutions, or are gipsy and other children not attending school. It follows that the dental surgeon appointed will have practically a monopoly of experience of children's teeth; and that if the father of one of the 4 per cent. children wishes to have the benefit of this experience for his child he will have to enter him as a pupil at one of the elementary schools. The same thing will apply to the ophthalmic and aural surgeons if it be finally decided to group school areas and appoint whole-time doctors; and it seems probable that this will be done, for it must be remembered that the medical adviser to the Education Department is himself a whole-time officer, as is also the lay inspector of the department at whose suggestions in this case the decision to establish a school clinic was taken; the school teachers also are whole-time officers.

It will be noticed that under this system the children are differently treated to their fathers under the Insurance Act; the children are placed under the care of specialists, whereas their fathers are to be treated by general practitioners. Further, in the case of his child, the father has no choice of the specialist, whereas in his own case he has some choice, limited to the doctors on the panel and to change only at stated intervals.

Whether it is desirable or not that school doctors should be whole-time officers is an important question to be decided by the body most competent to decide it, and it is very doubtful if a local education committee, even if assisted by the advice of a lay school inspector, is the most competent body; it is desirable that the advice of the profession should be considered, and also that one or more medical practitioners should be on the education committee, elected either in the ordinary way or by coöption, or in both ways. The object of this letter is to draw the attention of your readers to an urgent matter, not to express my own opinions. They, however, are: (1) that there should be school clinics; (2) that the medical officers should be part-time, not whole-time, officers; (3) that all the schools of an authority should not be placed under one doctor for each specialty, but (4) that only one or two schools should be placed under one doctor, so that any doctor in the area working specially at a particular subject and otherwise suitable should have an appointment or the probability of soon receiving one; (5) that the father of a child should have free choice of a doctor for him, apart from any panel; (6) that there should not be for women doctors, as there is for women teachers, a rule requiring resignation on marriage; and (7) that if laboratories are established they should not be reserved for whole-time research officers, but open to others, even if the investigation is primarily intended for the benefit of an individual patient.

The surest way to stop medical progress is to overwhelm some of us with clinical work and warn all others off the course. Be it remembered that these same education committees, to whom in this matter the House of Commons has given dominion over the medical profession, have themselves been accused of degrading the work of their teachers by making the classes too large.

I am, Sir, yours faithfully,

Devonshire-place, W., Dec. 16th, 1912. WALTER EDMUNDS.

DRUNKENNESS AND THE EFFECT OF ALCOHOL.

To the Editor of THE LANCET.

SIR,—Dr. Mercier, in his witty, wise, and eloquent oration, makes one statement which my memory allows me to challenge. He says that he is, he thinks, the first to claim for alcohol when it is given to anyone labouring under fatigue the power of bringing out reserve forces of mental and physical energy. Yet I quite well remember the late Benjamin Ward Richardson, in a temperance address of long ago, allowing this quality in alcohol. B. W. Richardson gave a hypothetical instance of an athlete walking for a wager. The athlete at the end of 49 miles could go no further until a glass of brandy enabled him to draw on unused muscular power, the stimulant acting through the nervous system. The brandy pushed him through the last mile.

Evidently Dr. Mercier is in complete agreement with Sir Benjamin Ward Richardson on one point, if on one point only. I am, Sir, yours faithfully,

Leeds, Dec. 14th, 1912. H. DE CARLE WOODCOCK.

To the Editor of THE LANCET.

SIR,—In a small book called "Intemperance," by the Bishop of Croydon (Longmans, Green, and Co., 1909, price 2*s.* 6*d.*), it is stated on page 46:—

But in all this mass of sad and depressing facts we have a grain of

comfort from the Report on Licensing Statistics for 1908. We find from it that for that year there were 187,803 convictions for drunkenness or for offences connected with drunkenness, being a *decrease* of 9261 on the previous year.

And also on page 10 the following :—

From the Report on the Operation of the Law on Inebriates published last year (1908) we find that during the nine years in which the Act of 1898 has been in operation 1,751,830 *persons* were convicted and sentenced, in courts of summary jurisdiction, for drunken behaviour. During last year there were 187,803 convictions for drunkenness, being a decrease of 9261 on the previous year. These convictions were at the rate of 53·14 per 10,000 of the population, or over 1 for every 200. How many were equally guilty of intemperance who escaped appearing before the magistrates? Four times as many, may we say?

Again, on page 98, referring to Liverpool, he says :—

Drunks, in the year 1889, 40 per 1000 of the population, reduced to, in the year 1903, 10¼ per 1000 of the population.

At the Alcoholism Congress in 1909, Lieutenant-Colonel A. B. McHardy, dealing more particularly with the criminal statistics of Scotland, said there were 90,000 cases of public disorder due directly to the influence of drink.

In the *British Medical Journal* of August 7th, 1909, p. 319, the Lord Chief Justice is reported as saying that he had no hesitation in saying that 90 per cent. of the crime of this country was caused by indulgence in strong drink. This is interesting in view of Dr. Mercier's statement "that we never hear of such charges now," in referring to judges charging juries.

There can be no doubt that the evils of alcoholism have been exaggerated in certain directions by some, but Dr. Mercier's optimism I hold to be unwarranted.

I am, Sir, yours faithfully,

Dec. 30th, 1912. A. B. C.

STOMATOLOGY IN GENERAL PRACTICE

To the Editor of THE LANCET.

SIR,—I wish to thank you for your courteous review of my book on Stomatology appearing in THE LANCET of Sept. 14th last. May I point out one comment which might be misleading to your readers, since it hardly agrees with the statements in the book? The review refers to my "advocacy of collar crowns and bridges" as being incompatible with previous remarks regarding the effects of oral sepsis. In the whole book there are only some 20 lines devoted to the subject of crowns and bridges, and there I make the following statement as regards these kinds of prosthetic appliances: "Both crowns and bridges require the greatest care in construction and have in the past been much abused by certain classes of dental practitioners, owing either to their being fixed to septic teeth or to their originating an unhygienic or suppurative condition after fixation." I am, Sir, yours faithfully,

University of Otago, N.Z., Nov. 7th, 1912. H. P. PICKERILL.

THE EXAMINATION FOR THE DEGREE OF M.S. LONDON.

To the Editor of THE LANCET.

SIR,—The rejection of 12 of the 15 candidates at the recent examination and of 12 out of 14 last summer can hardly pass without serious comment. It is impossible to accept the view that so large a proportion of men would think of presenting themselves so unprepared for examination. Many of us know that several had passed the Final Fellowship and are men well up in the subjects and in every way worthy to be admitted to the mastership. There is only one conclusion to be drawn from these results—the examiners are at fault. They must have taken on both occasions an exaggerated view of the position the M.S. should hold, and determined to go one better than the College. This was never intended, and a continuance of such a policy must injure the University. The M.S. was meant to correspond with the M.D. and those who framed the examination intended it to be so, and those who first carried out the duty of examining tried to fulfil the conditions. I cannot but think that in the interests of the University and the candidates alike some inquiry should be made.

I am, Sir, yours faithfully,

A FORMER EXAMINER IN SURGERY FOR THE M.S.

Dec. 26th, 1912.

THE MEDICAL PROFESSION AND THE NATIONAL INSURANCE ACT.

To the Editor of THE LANCET.

The Obligation of the Pledge.

SIR,—As a member of that original State Sickness Committee of the Association which drafted the form of undertaking signed by 27,000 doctors, might I state concisely certain facts? Possibly they may prove of assistance to some of my profession in their present state of uncertainty.

When this sentence in the undertaking was being drafted: "I will not enter into any agreement for giving medical attendance and treatment to persons insured under the Bill, excepting such as shall be satisfactory to the medical profession, and in accordance with the declared policy of the British Medical Association," the question was raised whether the policy therein referred to was the policy arrived at at the Special Representative Meeting on June 1st, 1911, or whether it could be interpreted as having a binding effect as regards any modification or addition to that policy in the future. We were informed that the solicitor stated that the sentence in view of the words "shall be" would make the undertaking binding on the signee with regard to any future policy *providing it were arrived at in a constitutional manner.*

The policy of the Association was arrived at on June 1st, 1911, and was reaffirmed in July, 1912, at Liverpool, with the addition of a seventh principle having reference to professional control. One of the sixth original principles was "that the *administration* of medical benefits should be by Local Health (Insurance) Committees and not by Approved Societies."

Now the policy of the Association is defined in the Articles and By-laws as being a decision of the Representative Meeting on any subject that has *previously* been before the Divisions for their consideration, which decision must be carried by a two-thirds majority, and must receive either the approval of the Council subsequently, or be adopted by a majority of the votes of doctors called together specially to consider the decision in Division meetings. Also at a Special Representative Meeting (such as the Dec. 21st one) no business can be dealt with "other than that for which it has been specifically convened."

At the Special Meeting in December a motion was proposed "that arrangements be made between doctors and insured persons or their representatives." This resolution was opposed to one of the principles of the policy (see quotation above), had never been before the Divisions for consideration since it had been negatived in April, 1911, and was not specifically entered on the Agenda, and therefore should have been ruled out of order on each of these three objections respectively. The constitutional policy as reaffirmed in July, 1912, still stands. The undertakings signed apply to that policy. Attempts are now being made to make them apply to a bastard policy.

If any doctors require to be absolved from their undertaking in order to have a free hand, it is those doctors who now propose to enter into arrangements with Approved Societies, and not those who propose to enter into arrangements with Insurance Committees, always providing that such arrangements are in accordance with the policy of the Association as confirmed at the Liverpool meeting.

I am, Sir, yours faithfully,

Brighton, Dec. 30th, 1912. E. ROWLAND FOTHERGILL, M.B.

To the Editor of THE LANCET

SIR,—Please insert this letter which I have sent to Mr. Lloyd George, and oblige yours faithfully,

Liverpool, Dec. 28th, 1912. R. R. RENTOUL.

To the Right Hon. Lloyd George, M.P.

DEAR SIR,—It is evident that a considerable number of doctors wish to act under the Insurance Act if you will agree to the following points; and that if you cannot grant these at once, you will promise that the Government shall forthwith pass an amending Act incorporating these points.

These points are as follows :—

1. That no local or other courts be formed for the trial of doctors. At present there are the civil and criminal courts, while the General Medical Council has power to try, and to strike the name of any guilty doctor off the Register. Every case where any doctor is tried and found guilty in any civil or criminal court is now reported by such court to the G. M. Council. This Council has ruled that if a doctor

has been found guilty of being intoxicated while treating a patient; or has been a guilty co-respondent in a divorce case; or pretends that his assistant is a qualified doctor when he is not; shall be guilty of "infamous conduct in a professional respect," and his name struck off the Register. If you think this is insufficient, I may say that there are local informal courts—the afternoon tea court—which try doctors, usually without any evidence, and sometimes ruins a doctor.

2. That doctors shall not object to medical inspectors. Such inspection is now in full force with all asylums, public vaccination, Poor-law, and municipal doctors.

3. That the maximum income limit for medical benefit for insured persons shall be £160. That all insured whose income becomes over £160 shall cease to obtain medical benefit unless such pay a higher scale of fees.

4. That the postal correspondence of all panel doctors shall not require any postal stamps.

5. That a scale of surgical fees be provided. If doctors are not paid for operations the sick public will suffer, and compensation claims will increase.

6. That all doctors shall continue in their present legal right to supply medicines to all patients if they wish to do so, and at the tariff rate as used by chemists. If this is denied, doctors will lose over £1,500,000 yearly.

7. That each doctor, if he so wishes, shall be appointed a public vaccinator. This can now be done by the L. G. Board and by Poor-law guardians.

8. That if chemists wish it to be made illegal for doctors to dispense, they shall also agree to making it illegal for chemists to prescribe; and also to form a fund out of which they shall compensate dispensing doctors upon a five years' valuation.

9. That all panel doctors, their wives, and children over 16 years, shall be entitled to become insured persons for medical, sanatorium, sickness, maternity, and disablement benefits.

10. That all panel doctors who so wish, shall be appointed to inspect and treat school children under the E. E. Acts.

11. That a Superannuation Fund be established by the Insurance Commissioners, so that panel doctors shall obtain such when over the age of 60 or sooner if invalided: by a 5 per cent. deduction from their income. Such provision is now made for Poor-law, prison, asylum, army, navy, and other official doctors. I made this suggestion in January, 1912, in my pamphlet, "The Sick Public: The Doctors and the Insurance Act."

12. That each doctor shall be paid a fee of 2*s.* for each certificate sent by him of notification of a live or still birth under the Notification of Births Act.

13. That each doctor shall be paid 2*s.* 6*d.* for each certificate sent in by him for a certificate of the cause of death.

14. That a dental benefit shall be now established for insured persons. A great many diseases are caused by diseased teeth, and it is known that the British public have the most diseased teeth of any nation. The Act provides that dental treatment may be given as an "additional benefit." But as yet no money is provided for such.

15. That the maternity benefit be paid in cases of premature confinement of over 12 weeks' conception. The Act provides that it shall be given only in cases of 28 weeks' conception. This will seriously affect the lives and health of women, as their premature confinements are the most dangerous. Last year in England and Wales about 3150 died owing to confinements, and if left without any help or benefit their death-rate will increase.

16. That the maternity benefit be increased from 30*s.* to 100*s.* opposite each live born child, and alive for five years after its birth, and when the parents are married. This year the Commonwealth Government of Australia has granted a £5 benefit.

17. That when a doctor is called in by a midwife his fee shall not be deducted from the 30*s.* maternity benefit due to the confined woman. Most unfortunately, it is provided in Para. 15 of your Model By-laws that it shall be so deducted. This will prevent poorer women from sending for a doctor, and so will increase their sick and death-rate, and will also encourage criminal and other stillbirth business.

18. That the medical benefit of the doctor shall be given from the day following the confinement. The Act provides that it shall not be given within one month after. Here, again, the mother and infant are certain to suffer.

May I add that I have worked in favour of your scheme. In 1884 the *Liverpool Courier* and the *Daily Post* published three long special articles by me upon the German Laws of Compulsory Insurance. The *Forester's Miscellany* of August, 1886, also published a similar article, and it is instructive that its editor then said, "The editor, while not endorsing the argument, deems the matter of such importance as to justify its publication." In 1887 and 1889 I endeavoured to establish a public medical service owned and controlled by doctors. In 1891 I published my work, "The Reform of Medical Charities." In 1890 I gave evidence before the Select Committee of the Commons on Registration of Midwives, and in 1893 before a similar Committee of the Commons on Registration of Stillborn Children. In 1892 I laid before a meeting of the Liverpool Chemists' Association a translation of foreign laws relating to non-dispensing by doctors and non-prescribing by chemists, while in 1908 I gave evidence before the Royal Commission on the Feeble-minded. Lastly, I petitioned the late King and Queen to establish a Royal Order of Motherhood for such mothers as brought up the largest number of physically and mentally healthy children.

You will therefore see that I am in very active sympathy with any scheme which will supply citizens of limited means with efficient medical, surgical, obstetric, and dental treatment, and medicines. Your scheme, if it embraces the above points, will do so. My fear is, that if doctors be not paid sufficiently we shall supply the public with a politically glorified Poor-law Medical Service, which will endanger the public health and national welfare. The Act provides for the taking away from doctors of about £1,500,000 yearly gained by dispensing of medicines, while the handing over of their obstetric work to midwives will rob them of nearly another £1,000,000 yearly. At 6*s.* 6*d.* per insured person, and with no fees for night visits and operations fees, another £2,000,000 yearly will be deducted from doctors' incomes. The voluntary hospitals with the present permission to their doctors to charge fees for treatment of patients while in hospital; the providing of vaccination by public vaccinators; the exclusion of general practitioners from appointments for examining and treating school children; the Midwives Act by taking four-fifths of obstetric work from doctors; and the sending of patients to sanatoria—these all make one feel that parents will refuse to send their sons to study for doctoring, and that if we are not careful the sick public, especially in rural districts and ordinary towns, must suffer from a very incomplete service and from inefficient and badly paid doctors unless marked improvements are made in the Insurance Act and its Regulations.

I am, yours faithfully,

R. R. RENTOUL.

To the Editor of THE LANCET.

SIR,—As a consistent opponent to medical men giving their services to work the Insurance Act as at present framed, I should like to point out the "panel" doctors' work, conditions and pay as embodied in the Act. They must attend night and day on any call from an insured patient; they must give personal service; they must dispense medicines when approved chemists are not available; they must keep a stock of drugs; they must attend patients whose illnesses are caused by drink or their own misconduct; they must attend abortions and miscarriages; they must attend all cases referred to them from the hospitals; they must keep records of all cases; they must submit to medical inspection; they must furnish statements of their work to the Insurance Commissioners when required; they will be subjected to the annoyance of patients complaining; they will lose all their independence; they will be the servants of the insured; they will have their holidays limited; they will have to attend patients refused by other doctors; and they will be liable to have their names struck off the panel (which means ruin to many) by the Insurance Commissioners.

In return for these services they will receive in payment 6*s.* 6*d.* per head per annum, with the possibility of an extra 1*s.* This is not one-third the amount received by a veterinary surgeon for attendance upon horses for the same period. His pay is 21*s.* per head per annum. Can any self-respecting medical practitioner accept such terms?

I am, Sir, yours faithfully,

Walworth, S.E., Dec. 30th, 1912. ROBT. SAUNDERSON.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Manchester Royal Infirmary and Insured Persons.

AN important statement has been issued by the superintendent of the Manchester Royal Infirmary regarding the attitude of the infirmary to persons insured under the National Insurance Act. An impression had been created that the board of management had determined not to receive and treat as patients insured persons. The board state that they have come to no such determination, and that the infirmary will continue to receive and treat as patients, as heretofore, all cases proper for hospital treatment, without reference to their status as insured persons. No change in this respect will be made without authorised public notification.

Provident Dispensaries and the National Insurance Act.

At a recent meeting of the council of the Provident Dispensaries Association it was intimated that the dispensaries, which have served the needs of the thrifty poor, would have to cease their work on Jan. 15th next unless some scheme could be devised having for its basis an increase in the weekly contributions of members to compensate for the loss sustained by the withdrawal of all those members compulsorily insured under the Act. The provident dispensaries have been in existence for nearly 40 years. The number of paying members in Manchester is 14,000. Including children under 14 years of age, the total number on the books at the end of last year was 16,536. The total income from members' subscriptions for the year was £2974, and £1591 were paid out to medical men. For a payment of one penny per week the institutions have provided medical attendance for the poorer classes. It is estimated that under the National Insurance Act one-third of the members will withdraw.

Declining Support of the Hospital Sunday Fund.

At the annual meeting of the Manchester and Salford hospital fund committee serious attention was drawn to the falling-off in subscriptions to the public hospitals. The number of persons treated in these hospitals has increased largely, but there has been a falling-off of financial support.

The receipts amounted to £3754, which is less by £41 than the receipts of last year, although the present income included a sum of £462 from the residue of the King Edward Memorial Fund. The receipts from church collections were only £3157—the lowest ever received from this source—and showed a decrease of £500 on last year. It was pointed out that not only were the subscriptions to the Sunday Fund decreasing, but there was a general decline also in contributions to the hospitals. The total decrease amounted to £22,000, while there was an enormous increase in the number of patients treated, the total last year being 346,947. The accident cases alone reached 71,000 and there were 19,000 operations. The contributions to the Hospital Sunday Fund have fallen almost to one-half of the sum contributed in 1870, though the population has practically doubled in the same period.

Post-Graduate Demonstrations at the Royal Infirmary.

The course of post-graduate demonstrations given by members of the honorary staff of this infirmary will be resumed on Jan. 14th. The demonstrations will be given on Tuesday and Friday of each week during the second half of the winter session, the medical demonstrations being on Tuesdays and the surgical on Fridays. Notice of subjects will be sent for publication in the "Diary of the Week" of THE LANCET, and will also be found posted in the Oxford-road lodge of the Royal Infirmary.

Professor W. H. Perkin.

Dr. W. H. Perkin, Ph.D., F.R.S., who has been professor of organic chemistry in the University of Manchester since 1892, has been appointed to the Waynflete professorship of chemistry in the University of Oxford, vacant by the resignation of Dr. William Odling. Professor Perkin was educated at the City of London School, the Royal College of Science, and the Universities of Würzburg and Munich. From 1887 to 1892 he was professor at the Heriot Watt College, Edinburgh. In Manchester Professor Perkin succeeded the late Professor Schorlemmer. He will not take up his duties in Oxford until October next.

5000 Back-to-back Houses in Rochdale.

In common with other Lancashire towns Rochdale is faced with the housing problem in an acute form. Local builders assert that they do not build houses to keep pace with the growth of the population because they are so hampered with the restrictions of the corporation by-laws that the increased cost of labour and material prevents them from erecting houses to pay at a rental of 5*s.* 6*d.* per week. At a Local Government Board inquiry into the advisability of putting the Town Planning Act into operation in a certain district, held in Rochdale, it was stated that there are 22,000 houses in Rochdale, and that no fewer than 18,000 are houses of a working-class type. Of these, 5000 are back-to-back houses. Under the new scheme there would be 16 houses per acre instead of 46, as at present.

Dec. 30th, 1912.

SHEFFIELD.

(FROM OUR OWN CORRESPONDENT.)

Faculty of Medicine: Post-graduate Lectures on Tuberculosis.

THE Faculty of Medicine of the University has arranged to give a short course of 15 lectures on tuberculosis, limited to affections of the lungs and lymph-glands. This course begins on Jan. 9th, and is specially arranged for medical practitioners, and comes at a time when there is a general feeling that something must be done by the medical schools to retain their position as places where the subject of tuberculosis can be and is taught. From a perusal of the syllabus of lectures it is seen that they meet a generally felt want, and covering, as they do, the whole field of the subject, arranged in a progressive manner, should prove popular and attractive in the district. There is no doubt that the day of regular post-graduate teaching is coming quickly. The teaching centres must and will be fountains of learning, where practitioners can refresh their minds whenever they wish, not merely places for preparing students for degrees.

Donation to the University.

The Faculty of Medicine has recently been the recipient of a sum of £500 presented by the widow of the late Mr. John Hall, M.R.C.S., formerly a well-known practitioner in the city. The interest from the money is to provide, annually, a gold medal to be given to the student of the Faculty who does best in the pathology examination for the M.B., Ch.B. of the University, and is to be known as the John Hall Gold Medal. The balance of the income is to be devoted to the preservation and upkeep of the Pathological Museum. This donation, apart from its intrinsic value as a stimulus to pathological work, has a broader interest—it is a tangible recognition of the value of provincial medical teaching centres to those youths who may have brains and energy, but are without sufficient means to reside away from home during the five years of their medical curriculum. As is stated in the letter conveying the offer: "The late Mr. John Hall owed his career in life to the old Sheffield Medical School and the generous services of its honorary staff of lecturers." Would that similar gratitude were more frequently shown.

The Royal Infirmary.

The board of the Royal Infirmary has recently suffered a great loss by the resignation of its chairman, Mr. John Marshall. Thirty-seven years ago he joined the board, and has held the responsible office of chairman for the last 22 years. During his period of office the work of the institution has increased to an enormous extent, its buildings have been largely added to, and it has been brought up to and maintained at a standard of efficiency second to none in the country. Whilst in no way wishing to minimise the share which many others have taken in this good work, yet there is no question that the active force which has constantly stimulated and guided the advance has been the chairman of the board. A man of broad views and high aims, he has by his courtesy and tact brought about a relationship between board and staff of the most felicitous kind, the benefits of which are likely to last for many years to come. He carries with him the good wishes of all for health and strength to enjoy his well-earned leisure.

The Pathological Section of the Medico-Chirurgical Society.

During the last three years, thanks largely to the active support of the late professor of pathology (Dr. J. M. Beattie) a pathological section of the Sheffield Medico-Chirurgical Society has been formed. The section meets monthly during the winter terms, and has proved highly attractive and popular. The numbers attending the meetings and the vigorous character of the discussions augur well for the future of the section. During the present session papers have been read by Professor H. R. Dean on Complement Fixation, Mr. Arthur M. Connell on Hypernephroma, and at the last meeting Dr. J. B. Burt, of Buxton, gave a valuable address on the Bony Changes in Gout and Rheumatism. The paper was illustrated by specimens, X ray photographs, and lantern slides, and was followed by a short account from Dr. Yates on his recent experiments in the Causation of Arthritis, and an excellent discussion.

Provision of a Public Mortuary.

For some time the lack of a suitable public mortuary for the city has been deeply felt. With the high municipal rates now existing it has hitherto been found difficult to obtain the financial assistance necessary for this "luxury." However, thanks largely to the tact and persistency of a medical councillor, Mr. W. H. Fordham, the scheme has been successfully carried through. The plan has been officially adopted, and the council is hard at work setting things going. From what we hear, it is probable that when completed the building will prove to be modelled upon the most up-to-date lines and well worthy of the city.

Appointments.

Dr. A. G. Yates, formerly medical registrar, has been appointed physician to the Royal Infirmary, to fill the vacancy caused by the lamented death of Dr. W. Tusting Cocking. Dr. Yates has had a distinguished career, having been one of the first Beit Research Scholars in the provinces. His work with Professor Beattie on the specific organism of acute rheumatism is well known to pathologists. Mr. E. F. Finch, formerly surgical registrar, was at the same date appointed to the recently made post of assistant surgeon.

The National Insurance Act.

As I write it is not known what medical men have consented to go upon the panels.

Dec. 30th, 1912.

NEWCASTLE-ON-TYNE.

(FROM OUR OWN CORRESPONDENT.)

The National Insurance Act and the Profession in Newcastle-on-Tyne.

AT a largely attended meeting of the profession in this city, including non-members of the British Medical Association, held on Dec. 27th, the following resolutions were carried:—

1. That this meeting of the medical profession in Newcastle and district desires to express its strong disapproval of the way in which the just claims of the profession have been disregarded by the Government, but in view of the scheme of the British Medical Association having been vetoed by the Government, we reluctantly have come to the conclusion that it is our duty to the general public to accept provisional service under the Act as the lesser evil both to them and to ourselves.
2. That the county borough of Newcastle-on-Tyne provisional Local Medical Committee now become the statutory Local Medical Committee, and that they apply for recognition from the Local Insurance Committee.
3. That by its new policy the British Medical Association has violated the understanding on which the pledges were given, and therefore the pledges are now void, and members are free to join the panel immediately.
4. That all the members of the profession in the county borough of Newcastle-on-Tyne who accept service on the panel be urged to send in their names to Mr. Willan, the local secretary.

This last resolution is merely so that the Local Committee, in order to look after the interests of the doctors on the panel, may know exactly who is and who is not on the panel, and be able to circularise such medical men if necessary later on. The decision which has been arrived at in Newcastle appears to be that of the other towns and districts in the neighbourhood. In Gateshead, Sunderland, Wallsend, South Shields, and Middlesbrough panels are to be formed. Most of the divisions involved are taking service for a provisional period of three months. This will probably mean that the panels will be of a permanent nature, for there is no indication that there will be any change in the conditions of work in the course of the next three months.

Dec. 30th, 1912.

BRISTOL AND WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

Bristol Medical Men and the Insurance Act.

FOR medical men in Bristol, as in other parts of the country, this has been an anxious Christmas. At a meeting held a fortnight ago a large majority decided against working the Act; in fact, the decision was almost unanimous, only about 50 Bristol men abstaining from the vote, and not one voting for service. In spite of this reports began to appear in the papers to the effect that a panel could be formed, at least in large measure, from those who had not voted. Possibly these rumours were inspired; at any rate, they were untrue, as the provisional Local Medical Committee was able to show in a letter published in the public prints. At the same time it became clear that many of those who had voted against acceptance of the Act had done so in order to secure time for a consideration of the alternative proposals set forth a few weeks ago by the leaders of the local profession; and that a further perusal of this scheme had failed to convince some practitioners of its superiority over the Government's amended proposals. This was tantalising for the promoters of the local project, who had held several very encouraging interviews with the Friendly Society officials with a view to the formation of a service which would include not the insured only, but also dependents. However, the urgent need for a service acceptable to everyone was boldly faced; the provisional Medical Committee came into touch with the Bristol Insurance Committee, which in this, as in the administration of sanatorium benefit, displayed a most praiseworthy anxiety for harmonious relations with the profession, and a deputation composed of representatives from both committees interviewed the Commissioners with results satisfactory to everyone. At a mass meeting of the profession held on Dec. 30th the altered conditions of service sanctioned by the Commissioners, provisionally for three months, were explained. The most important of these are the setting up of a committee, consisting equally of representatives from the Insurance and Medical Committees, to administer medical benefit; complaints against medical men to be considered in the first place by the Medical Committee and then referred to the Joint Committee; the medical inspector to be appointed by the Joint Committee on the nomination of the Medical Committee, which will also be responsible for defining his duties. After it had been intimated that the British Medical Association regarded these alterations as adequate, so that the pledge need no longer be adhered to, it was decided to recommend practitioners to accept service on the panel. Those who have toiled incessantly for the past 18 months have once more deserved the gratitude of the local profession for their tactful handling of a delicate situation; and Bristol is also fortunate in possessing an Insurance Committee which is sincerely determined to establish an efficient medical service under the Act.

Death of Dr. James Barclay Montgomery.

Dr. J. Barclay Montgomery died at his residence at Penzance on Dec. 25th in his eighty-fourth year. He was the son of the late Dr. James Montgomery, of Penzance, and received his medical education at the University of Glasgow, graduating as M.D. in 1851. In 1852 he obtained the M.R.C.S. Eng. and L.R.C.S. Edin. qualifications. Dr. Montgomery was admitted a Member of the Royal College of Physicians of London in 1859 and a Fellow in 1875. He was on the honorary staff of the West Cornwall Infirmary for 50 years, and on his retiring, about ten years ago, the subscribers to that charity made him a handsome presentation. Dr. Montgomery, who was a justice of the peace for Penzance, was held in the highest esteem there. He married in 1863 Miss M. Boyle, who survives him, their only child, Dr. Hugh Montgomery, having died about four years ago.

The Remuneration of Poor-law Medical Officers.

At the last meeting of the Barnstaple board of guardians it was reported that the medical officer for the Ilfracombe rural district had resigned the appointment and that no application had been received for the post. The present holder had offered to attend to patients until another medical man could be appointed, at the remuneration of 2*s.* 6*d.* for visit and medicine and 1*s.* 6*d.* for consultation and medicine at his surgery. Several of the guardians considered those fees very moderate and it was agreed to accept them. It was mentioned at the meeting that the resignation was due entirely to the inadequacy of the salary, and the guardians eventually decided to ask the acting medical officer to state at what salary he would be willing to continue in office.

Dec. 31st, 1912.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

The National Insurance Act in Edinburgh and Leith.

IT may be safely said that in Edinburgh and Leith the loyalty of the profession to the policy of the British Medical Association is practically unshaken amongst both members and non-members of the Association. This feeling has been amply shown at the numerous meetings which have been held, and the voting has invariably been practically unanimous against service under the Act. It is certain that the response to the appeal of the Burgh of Edinburgh Insurance Committee, dated Dec. 12th, for service on the panel has so far been very poorly responded to. Although actual numbers are not available, of 26 Leith practitioners, 25 have refused to act in this capacity, and it is certain that in neither district will sufficient men be found to work it under the present arrangements. On the 20th of the month the Scottish Insurance Commissioners issued a pamphlet to the profession dealing with the subject, merely going over the ground under the headings of remuneration, duties, lay control, safeguards, records, inspection, and mileage; it concluded with the statement that although the Commission was bound by the Act, which could not be overridden, they were willing to confer with medical men on all subjects admitting of local arrangement. The Local Insurance Committees have also

intimated their willingness to confer with the practitioners, either through the medium of the Provisional Committees or otherwise. At a largely attended meeting of the profession held on the 26th the Public Medical Service outlined by the British Medical Association was cordially approved after full discussion, and the meeting authorised the provisional Local Medical Committees to confer with the representatives of insured persons with a view to providing attendance outside of the Act, and along the lines of that scheme. The opposition seems to lie mostly against the principle of lay control, and this point is receiving the careful consideration of the medical organisations in their efforts to work out this scheme of Public Medical Service, as a first step to which the following announcement has been published in the lay press of the city, signed by the honorary secretaries of the Edinburgh and Leith provisional Local Committees:—

In view of the final decision of the British Medical Association, which has been endorsed by the medical profession in Edinburgh and Leith, to refuse service under the Act, it is important that each insured person should be reminded that he or she has the right to apply to the Local Insurance Committee for permission to make his or her own provision for medical attendance.

It had previously been stated through the same sources that the Medical Committees were prepared to confer with insured persons or their representatives with a view to arranging a scheme providing for medical treatment. The Commissioners have also delayed the date of receiving names for the first panel until the end of the current week. No fresh advances have been published as regards the administration of the tuberculosis benefit, but important announcements are expected within the next week or two. The fact that the various departments of the Edinburgh anti-tuberculosis system have been in full working order for a considerable number of years will no doubt make the process easier in the city, especially as the coöperation between this organisation and the public health department is already very close. Regarding the portion of the Act involving druggists, it is stated that, with the exception of a dozen or so, all have accepted service under the conditions recently laid down.

Proposed Lister Memorial.

An informal meeting was held in Glasgow in February last to consider the advisability of taking steps to commemorate in a fitting manner the beneficent work of the late Lord Lister. It was felt that Glasgow ought to take a foremost place in this direction, seeing that it was here that Lister first put into practice the discoveries which have done so much for the alleviation of human suffering. The meeting resolved that steps should be taken to give to the memorial an international character. It was provisionally agreed to recommend to the public the endowment of a Lister International Award, to be given from time to time for the most notable contribution to the advancement of surgery in any part of the world, and the establishment of a Lister Research Fund to be devoted to fellowships, studentships, or grants for the promotion of investigation bearing on the improvement of surgery. It was also resolved that the memorial should include a monument of artistic design, to be erected in the neighbourhood of the Glasgow Royal Infirmary, and the formation of a Lister museum at the Royal Infirmary. In the month of May, under the auspices of the Royal Society and the Royal College of Surgeons, and with the coöperation of the Glasgow committee, a public meeting was held in London. At this meeting the principle of the Glasgow scheme was adopted as the basis of an appeal to the whole civilised world, and, in addition, it was proposed that a memorial tablet in Westminster Abbey and a statue on a suitable site in London should be provided. The provision of local monuments, such as that suggested for Glasgow, was left to local effort. The Glasgow committee is now appealing to all sections of the Scottish public for subscriptions, and they have asked subscribers to intimate what proportions of their contributions are to be assigned to the local and to the international funds respectively.

Small-pox in Kirkcaldy.

Two fresh cases of small-pox are reported in Kirkcaldy. A fortnight has elapsed since the last case was notified.

Aberdeen Hospitals and the National Insurance Act.

The honorary medical staff of the Aberdeen Royal Infirmary have unanimously agreed to adhere to the terms of the "complementary" pledge and all that it entails. This pledge has already been signed by all the members of the staff and submitted to the board of directors. The third clause of the pledge, which concerns the attitude of the staff, is as follows:—

After that portion of the National Insurance Act referring to medical benefit comes into operation, and until the terms and conditions of administering medical benefit under the National Insurance Act have been approved by the profession, (1) I will not, except in cases of urgent necessity, render professional service to any insured person through the service of any voluntary medical charity; (2) I will not coöperate with any member of the profession who is under contract to render service to insured persons upon terms which are not approved by the medical profession.

Copies of this resolution have been sent to all medical practitioners in the Aberdeen branch area, to the board of directors of the Aberdeen Royal Infirmary, and to the public press. The honorary medical staff of the Royal Aberdeen Hospital for Sick Children are also unanimous with regard to the same pledge, and the honorary secretary has been notified of their resolution.

Dec. 30th, 1912.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

New Tuberculosis Bill for Ireland.

THE text of the Tuberculosis Bill for Ireland, introduced before the Christmas recess, was published a few days ago. The Bill is intended to amend the Tuberculosis Prevention (Ireland) Act of 1908. It proposes to make Part I. of that Act applicable to the whole country instead of being, as heretofore, subject to adoption by the local authority. Moreover, notifications of cases of tuberculosis will, under the Bill, be sent, not to the medical officer of health, but to the superintendent of the nearest tuberculosis dispensary established by a county council. The superintendent, if he thinks anything should be done by the sanitary authority in any particular case, is to send a report to the sanitary authority advising the steps that should in his opinion be taken. These clauses do not apply to county boroughs. The other clauses of the Bill deal with questions of finance and machinery. The Bill does not promise any great advance on the Act it purports to amend. Up to the present, however, it has been chiefly the inertia of the Local Government Board which has rendered the Act of 1908 a dead letter. The Board made no attempt to persuade local authorities to use the powers given them under the Act, and the conditions under which cases were to be notified rendered notification useless.

Treatment of Tuberculosis in County Galway.

A retrograde step has been taken by the Local Government Board in regard to the treatment of tuberculosis in the County Galway. The medical staff of the County Galway Hospital, recognising that the most urgent need in the campaign against the disease was the provision of means for isolating cases unsuitable for ordinary sanatorium treatment, offered to man an isolation pavilion if erected in the grounds of the hospital. The board of management agreed to the proposal. The county council, however, as an alternative scheme, decided to build a sanatorium, and further applied to the hospital board for a site. The board, reversing the previous decision, agreed. The sanatorium is to be under the control of the county council, neither the staff nor the board of the hospital having any voice therein. The lands of the hospital are, however, vested in the Local Government Board, in trust for the carrying on the purposes of the hospital. It is doubtful whether the Local Government Board has acted legally in transferring to the county council the site of the proposed sanatorium, thereby alienating part of its lands from the hospital.

Belfast and its Milk-supply.

The Belfast corporation wishes to be in a position to satisfy itself as to the purity of the milk-supply of the city, and accordingly it has applied for an order under Section 19 of the Tuberculosis Prevention (Ireland) Act, 1908, which would enable the corporation to inspect the sources of supply in 13 rural districts from which milk is or has been supplied to the city. An inquiry was held on the subject by the

Local Government Board, which has the power to grant a compulsory order authorising the corporation to inspect these outside dairies; otherwise, the corporation can only inspect these sources of milk-supply if supported by the authority of the councils of the outside rural districts, which, however, object to give this authority. The Local Government Board has now written to the effect that it would be wiser for these councils to assent to inspection, but in the meantime it does not grant the order.

The Insurance Act and Belfast Practitioners.

A letter has been issued by the honorary secretary of the Belfast Local Medical Committee to the members of the profession in the Belfast district stating that no appreciable change in the situation has taken place, so far at least as Ireland is concerned, reminding practitioners that according to their "undertaking" they cannot enter into any "individual or separate agreement," and advising them to refer any such communications to the Local Medical Committee.

The late Dr. Peter Redfern.

I regret to announce the death of Dr. Peter Redfern, emeritus professor of anatomy and physiology, Queen's University, Belfast, at the advanced age of 91 years. At the time of his decease Dr. Redfern was the oldest Fellow of the Royal College of Surgeons of England, and probably the oldest honours M.D. of the University of London. He was for many years a great personality in academic and medical circles in Belfast, and his history gives an interesting insight into the past records of the medical profession. At a meeting of the Belfast Local Medical Committee, held at the Medical Institute, Belfast, on Dec. 23rd, Sir John W. Byers, who was in the chair, having referred in feeling terms to the great loss that the medical profession had sustained in the death of Dr. Redfern, Dr. R. W. Leslie, President of the Ulster Medical Society, proposed a resolution, which was seconded by Sir Peter R. O'Connell, and passed in silence, the members standing. The resolution expressed the committee's sense of the great loss sustained by the medical profession in the death of Dr. Redfern, who during the 33 years of his professorship in Queen's College, Belfast, did so much to establish and to extend the prestige and reputation of the Belfast Medical School, and recognised that throughout his pre-eminent career he did everything in his power to uphold the scientific position and the dignity and honour of the profession of medicine. Dr. I. A. Davidson, the honorary secretary of the committee, was requested to forward a copy of the resolution to Dr. J. J. Redfern.

Dec. 30th, 1912.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Treatment of Congenital Dilatation of the Colon.

M. Pauchet related recently before the Société de Chirurgie his personal experience, based on six cases, regarding the treatment of congenital dilatation of the colon. He concludes that this condition, when complicated by acute occlusion but without sloughing, ought to be treated by incision, evacuation of the gut, and appendicostomy. Later the diseased gut may be resected. When the dilated colon is gangrenous it should be resected and the two openings attached to the skin. In the case of an uncomplicated megacolon, a frequent occurrence, resection must be practised. It is an operation that presents little difficulty and from which satisfactory results may be confidently expected. Colotomy, coliplication, ileosigmoidostomy, and cæcosigmoidostomy must be abandoned, for they are just as serious as resection and give only incomplete results. Finally, appendicostomy, either preliminary or supplementary, is often indicated.

The Treatment of Post-anæsthetic Troubles.

M. Chauvin and M. Deconomus, at the Société de Thérapeutique on Dec. 11th, pointed out that anæsthesia, even during the period of administration, rapidly exhausts the reserves of glycogen. Thereafter, if sugar is supplied nothing abnormal happens. But if the patient is allowed to fast he lives at the expense of his reserves, especially of the fat, but to some extent also of the albuminoids. He oxidises them, but incompletely, and the intermediate products arising from incomplete oxidation are toxic. The function of rendering these toxins harmless falls on the liver. Now, a liver deprived of glycogen is in a state of functional deficiency from all points of view. From these facts the following practical conclusion may be drawn. In order to overcome the toxic troubles carbohydrates must be supplied to the organism, at first to prevent this condition from being produced, and afterwards to enable the liver to overcome it when it is produced. Directly assimilable glucose will therefore be the nourishment of election after operation. In order that the patient may assimilate the necessary amount a draught is prescribed composed of an equal quantity of water and of glucose, with a little tincture of nux vomica and tincture of canella. Vomiting is not increased by this, but rather is diminished. In a pronounced case glucose must be freely administered through every possible channel—by mouth, by rectum, and even intravenously. It will be advisable, moreover, by analogy with the practice in diabetic coma, to combine alkalies with it.

Disinfection of Premises after a Death.

A curious trial took place recently before the Seventh Chamber of the Tribunal. An action for the sum of 635 francs as payment for the disinfection of an apartment and bedding subsequent to the death of the occupier was brought against the widow of the deceased. The widow refused to pay, pleading that she had never ordered the procedure. The undertaker pleaded in support of his claim that even if the widow had not ordered it herself her maid had. The Tribunal, after investigation, rendered judgment that as the death certificate made it clear that though the husband was subject to attacks of asthma he had died suddenly at 41 years of age from cerebral hæmorrhage, nothing in the circumstances of his death made it necessary to disinfect an apartment that the widow was about to leave a few days later. The brother of the deceased, moreover, was a doctor of medicine, and if he had considered disinfection necessary it was not likely that he would have left it to the maid to take the necessary steps, seeing that he was himself accustomed to resort in the case of his own patients to the municipal disinfecting plant. But it had not been shown that the workman had acted in bad faith in stating that he had been called by the maid: he had been in fault only in not obtaining sanction for his work from the widow or brother of the deceased. The tribunal did not grant his claim, and even condemned him to pay costs.

Progressive Respiratory Exercises.

At a meeting of the Société de Pédiatrie on Dec. 12th M. Pescher described a new method of progressive respiratory exercises which he called the bottle exercise. A bottle full of water is inverted into a bowl of water. With a piece of rubber tubing or a curved metallic tube the subject, with a single expiration into the bottle, endeavours to empty it of water. By repeating this exercise 30 or more times daily the subject develops his respiratory capacity until he can easily empty at one effort bottles holding several litres.

Vaccination in Annam.

The vaccinations in Annam reached a total in the past year of 325,343, as against 164,316 in the preceding year. The two medical men attached to the travelling vaccination stations performed 180,641 of these, and the remainder were performed by the station medical officers. Somewhat more activity has been shown by this service of late. It is important to retain the moveable missions and to get all the good possible out of them, so long as the provinces maintain only a single medical officer, if small-pox is not to make its appearance in Annam.

The Treatment of Hæmorrhagic Ulcers of the Stomach and Duodenum.

M. Rigollot-Simmonot dealt with the surgical treatment of hæmorrhagic ulcers of the stomach and duodenum recently before the Société des Chirurgiens, basing his remarks on two cases. The first patient had undergone a simple gastro-enterostomy with a button; the extent of the lesions of the perigastritis, and the fixation of the pyloric region would have necessitated, to make an exclusion, a median section of the stomach which the patient was not in a condition to sustain. The hæmorrhage, after ceasing for two days and a half, recurred, and carried off the patient. Another patient who had undergone an exclusion of the pylorus was

entirely cured. In hæmorrhagic ulcers, considering the feeble condition of patients at the time of intervention, radical operations, excision of the ulcer, pylorectomy, are rarely allowable. The same is the case with exploratory gastrotomy, so that it is most frequently necessary to resort to palliative operations. Simple gastro-enterostomy, which is most often done, is entirely illusory if the pylorus is permeable; if the pyloric stenosis is spasmodic the opening will functionate in only a transitory fashion, so that recurrence takes place, with return of the bleeding, after a little time. Moreover, in a great majority of cases gastro-enterostomy is powerless to protect the ulcer from the stomach contents and to induce a definitive hæmostasis. It is necessary, therefore, to complete this operation by exclusion, either of the pylorus or of the duodenum, the operation of election in all active ulcers, whether much or little stenosed, especially when they are accompanied by hæmorrhages. In certain cases jejunostomy will find its indications in the contra-indications to exclusion arising from the seat of the ulcer, its extent, the concomitant perigastritis, or the general condition of the patient, for this operation may be performed under local anæsthesia. This is a very great advantage, especially if lavage of the stomach has been impossible prior to intervention, which ought always to be attempted. In these stomach operations, which demand great rapidity of execution, Jaboulay's button is a great help in the anastomosis.

Dec. 30th, 1912.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Sick Clubs and the Medical Profession.

A REFORM of the Workmen's Insurance Law will come into force in 1913, which is of interest to British medical men. The new law allows the relations between the sick clubs and the medical profession to be settled by mutual agreement, as the compulsory provisions contained in the original Bill did not meet with the approval of Parliament. The strained relations between sick clubs and medical men will perhaps prevent an agreement between them being arrived at. The medical men would then attend the members of the clubs as private patients, leaving it to them to recover from their club the fees paid to their medical advisers. To avoid such an undesirable state of affairs the Secretary of State of the Interior has convoked a meeting at which their respective cases will be stated (1) by representatives of the principal associations of medical men engaged in club practice and (2) by representatives of the directors of the clubs. He intends to propose a scheme which, while leaving the disputed questions of the free choice system and of fees open to settlement by individual arrangement, nevertheless provides that contracts between sick clubs and their medical officers shall conform to certain rules. This scheme, which is intended to remain in force for four years, will require the minimum duration of a contract to be at least one year, with six months' notice of its termination to be given. A court of arbitration in connexion with the district insurance office, consisting of its president together with four representatives of the medical profession and two members of the clubs respectively, will make the arrangements for club practice, and in the event of failure to arrive at an agreement, the matter is to be settled by a central court in connexion with the Imperial Insurance Office in Berlin.

The Overcrowding of the Medical Profession.

The medical chamber of Breslau in Silesia has requested the committee of the Prussian medical chambers to take measures to warn intending medical students against the study of medicine owing to the overcrowded state of the profession, and this proposal was discussed at the last meeting of the medical chamber of Berlin. It was then stated that the number of medical students, which during the last ten years of the nineteenth century averaged about 8000, had fallen to 6000 six years ago, but that since that time it had again risen to the record number of 13,400, while the number of qualifications to practise granted during the period 1910–11 was no less than 1150. The population of Germany had increased by 34 per cent. from the year 1885 to the year 1910, but during the same period the number of medical men had increased by 106 per cent. The number of private patients has moreover been diminished partly as a result of the workmen's insurance laws by which, especially in industrial towns, the majority of the population has become compulsory members of sick clubs, and partly in consequence of the increasing number of hospitals. The medical chamber of Berlin approved of the proposal of the Breslau medical chamber, and recommended that an essay published at the instance of the Leipziger Verband should be distributed amongst youths leaving school for the universities, the object of this essay being to warn intending medical students that there is little probability of their work in after-life being rewarded with financial success.

Dr. Friedmann's Treatment of Tuberculosis.

The paper read by Dr. Friedmann before the Berlin Medical Society caused a great sensation because of the reports in the lay press. In the medical profession, which after many sad experiences has become more and more suspicious of new cures for cancer and tuberculosis, the same stir was not noticeable. I see from an annotation in THE LANCET that the English daily papers have given a wide publicity to Dr. Friedmann's alleged cure, and a great deal of the comment has been the outcome of misunderstanding. What Dr. Friedmann really said was that in the bacillus of tuberculosis the antigens are contained, but that strongly toxic bacilli have always been used, the experiments to make the bacillus avirulent having hitherto proved inefficacious. He claimed to have succeeded in producing a remedy from active living bacilli, which had become avirulent by passage through turtles, and had proved totally innoxious for guinea-pigs. 1200 cases had been treated, and as a rule one or two intramuscular injections proved to be sufficient, though when the absorption was incomplete the success was small. The results were claimed by Dr. Friedmann to be excellent in external tuberculosis. Twelve cases of tuberculosis of the joints, partly of the most severe form, were, he said, cured. In tuberculosis of the lungs the symptoms showed almost always a rapid diminution when the remedy became absorbed. Tuberculosis of the bladder and the kidney also healed very promptly. The tuberculosis of the skin offered great difficulties, and he recommended injection in the neighbourhood of the affected spot. When the absolute innocuousness of the compound had been ascertained, infants of tuberculous families, some immediately after birth, received a prophylactic injection. 335 children had been treated in this way during the past year without the slightest harm to their health as long as the infiltration persisted. When this paper was read a long and animated discussion followed, which was extended over several meetings, owing to the great number of speakers on the list. Dr. Müller, Professor Schleich, and Dr. Karfunkel reported good results; the latter declaring that in his cases an improvement had nearly always showed itself. Professor Heymann, a laryngologist, said that he had administered the remedy in 17 cases of severe tuberculosis of the larynx, and that at least the patient felt better. Professor Blaschko, a dermatologist, said that he had seen a striking improvement in one case only of tuberculosis of the skin, and considered that the time was too short to allow of his giving a judgment which was worth anything. Professor Orth stated that the guinea-pigs to which the remedy had been administered lived longer than the control animals, but nevertheless had died from tuberculosis. Dr. Citron uttered a warning against the prophylactic administration of the compound in the case of children. He said that an avirulent virus might become virulent again, the conditions of virulence being still unknown. Professor Goldscheider said that Dr. Friedmann had not given a history of individual cases nor a description of the state of the organs before and after the cure. Before the prophylactic injection of the remedy into infants be recommended the absolute innocuousness of the compound must be ascertained. Dr. Piorkowski, who had prepared the first culture of bacilli for Dr. Friedmann, said that the latter had used a turtle from the Zoological Gardens, but that the animal was probably infected by human tuberculosis, the bacilli having gradually become very like those of human tuberculosis. Professor Klemperer said that prophylaxis could not be obtained by a single injection, but only by a series of

injections during the whole time of development. Dr. Aronson said that the same results as those described by Dr. Friedmann were obtained by the use of bacilli destroyed by glycerin. Dr. Wolff-Eisner wondered that no reaction had followed the injections, and doubted if all the cases treated were active tuberculosis. Dr. Meyer asked about the necessity of repeating the injection to secure immunity. Professor Bier, director of the first surgical clinic where Dr. Friedmann had treated a series of cases, stated that he had the impression that the compound had some action on the tuberculous process, but that in grave cases he had seen no healing. Dr. Schwenk corrected Dr. Friedmann's statement that he had cured a case of tuberculous ulcer of the bladder; in that case the ulcer had grown larger, as shown by cystoscopy. Dr. Friedmann replied categorically to all the critics, and announced the forthcoming issue of a monograph on the subject. The results of the proceedings were that Dr. Friedmann's claim to cure tuberculosis was held to be not well founded. Men of high scientific standard who had handed cases over to him have expressed a very doubtful opinion of the results, and also his theory has been severely criticised by competent bacteriologists. The warning of THE LANCET against regarding Dr. Friedmann's treatment as a scientific discovery for the cure of tuberculosis was thus justified, and was all the more necessary as some English daily papers were propagating a story of success. I happened to know that the Berlin correspondents of English papers approached the speakers who had spoken in support of Dr. Friedmann, asking them to give their opinion for insertion in the columns of their journals.

Dec. 28th, 1912.

CONSTANTINOPLE.

(FROM OUR OWN CORRESPONDENT.)

The Epidemic of Cholera.

THE epidemic of cholera, I am glad to report, is distinctly in abeyance. In quite a number of quarters it has not made its appearance at all. In Pera, the European quarter, only a few isolated cases were reported. Stamboul, where the great majority of the refugees were congregated, did not suffer to the same extent as was originally feared. Official reports are, of course, never trustworthy here. Thus to-day the municipality's bulletin gives 19 cases of cholera with 6 deaths. This is, as usual, too low an estimate of the actual mortality. Nevertheless, the alarming reports and rumours which appeared in the European newspapers were much exaggerated. Even the epidemic in San Stefano seems to have been less serious than was stated. I have even spoken with some medical men who flatly denied that cholera ever made its appearance at all. They attribute almost every case of mortality either to typhoid fever or dysentery, the result of bad or inefficient feeding or of starvation. Such sweeping assertions, however, go too far in the opposite direction. Many cases of true cholera Asiatica did occur and still occur. I myself treated quite a large number of patients with every genuine symptom of the true cholera. Yet it remains true that non-medical reporters and newspaper correspondents have greatly overstated the severity of the epidemic.

International Society against Tuberculosis.

The formation is publicly announced of an international society in Constantinople for the combating of tuberculosis, which is so prevalent on the banks of the Bosphorus. It is intended, not only to fight in a vigorous manner against the bacillus of Koch, but also against the predisposing agencies, such as alcoholism, poverty, and lack of efficient care and attention. Much money will be required for this purpose, and appeals are being made to the public and Government authorities for support. The headquarters of the society are at present in the buildings of the Imperial School of Medicine. Several prominent medical men are taking part in the campaign. In Constantinople the number of persons dying from phthisis ranges every week from 40 to 50. The society will undoubtedly do great good, provided the Ottoman Government can see its way to taking an active part in the movement. All private enterprise here counts for very little indeed.

Dec. 28th, 1912.

UNITED STATES OF AMERICA.

(FROM OUR OWN CORRESPONDENTS.)

Cellar Bakeries in New York City.

A BILL has been brought forward in the State of New York to amend the law regarding inspection and control of bakeries, one provision of which is to make one day of rest in seven obligatory. The Factory Investigation Committee of New York State met on Dec. 3rd to consider the Bill. Dr. Ernest J. Lederle, Chief Health Commissioner of New York City, in his evidence before this committee, opposed State inspection of bakeries and thought that inspectors should be sent out only from his department. Notwithstanding distinct advantages in licensing bakeries, he thought that a much better plan than requiring a physical examination of bakers would be to give the Health Department power to make its own rules. Most of the underground bakeries he had viewed were unsatisfactory, less because they were underground than because the employees were dirty and careless. Mr. Raymond B. Fosdick, formerly Commissioner of Accounts for New York City, held that underground bakeries could not be made sanitary. He had inspected 145 cellar bakeries, not one of which had he found satisfactory. Those interested in the continuance of underground bakeries insinuate that some bakery trust is behind the present movement, but this sort of thing is always said when any reform is projected.

Obligatory Instruction in Hygiene and Public Health.

It was recently stated that in the University of Kansas School of Medicine a course of public health and preventive medicine was to be required for the degree of M.D., and that this would be the first such obligatory course in a western medical school. Dr. John W. Scane, registrar of McGill University, has contradicted this statement publicly, saying that the Medical Faculty of McGill University has required such a course since 1877.

Requirements for Medical Licences in Pennsylvania.

It has been announced that after Jan. 1st, 1913, applicants for the licence to practise medicine in Pennsylvania must produce evidence that they have served as house surgeons or physicians in a hospital for a period of at least one year, after a four years' course of instruction in a medical school.

Death of Dr. Edward Curtis, of New York.

Dr. Edward Curtis, a distinguished physician and pharmacologist of New York, emeritus professor of materia medica and therapeutics in the College of Physicians and Surgeons, died at his home in New York on Nov. 28th. Dr. Curtis was born in 1838 and graduated in arts at Harvard University in 1859. He commenced his medical studies in that year at the College of Physicians and Surgeons, but enlisted in the Army of the North on the outbreak of the Civil War. He graduated in medicine at the University of Pennsylvania in 1864. In 1870 he returned to New York, and in 1878 was made professor of materia medica in the College of Physicians and Surgeons. He resigned in 1886 and was made emeritus professor. Together with Dr. Woodward, of the United States army, he performed the necropsy on President Lincoln in 1865.

Dec. 14th, 1912.

NOTES FROM SOUTH AFRICA.

(FROM OUR OWN CORRESPONDENT.)

Public Health in South Africa.

TWO sessions of the Parliament of the Union of South Africa have been held since the Union of the four provinces became an accomplished fact. During each of these sessions the Government introduced a Bill into Parliament dealing with the public health, and strenuously endeavoured to force it through before the session ended. On each occasion the attempt failed ignominiously, mainly owing to the opposition of the medical profession and of local authorities to the unsound principles embodied in the measure. During the recess the Hon. A. Fischer replaced the Hon. J. Smuts as Minister of the Interior. It is an open secret that the Bill prepared by the latter, which for two years

running fared so badly in Parliament, has been discarded by the new Minister, and that a new Bill has been drafted. From the fact that no reference has been made to any such Bill in the Government's legislative programme, it would seem probable that the Bill will not be introduced during the coming session. And yet a number of Bills on relatively unimportant subjects have been specifically mentioned as forming part of the legislative programme, which is to include apparently but few measures of real urgency. The position to-day is that in Natal the Public Health Act of the old colony has expired owing to effluxion of time. In the Free State the Public Health Ordinance was practically rendered inoperative by an amending Act of the Parliament of the Orange River Colony soon after the advent of responsible government. In the Transvaal there is no public health legislation whatsoever, other than that embodied in the municipal and mining laws. In the Cape Province there are, however, the public health laws of the old colony still on the Statute Book. The necessity for bringing in a comprehensive law for the Union cannot be too strongly insisted upon, even if it deals merely with port health, vaccination, and the prevention and suppression of outbreaks of infectious diseases. The medical officer of health for the Union and the three assistant medical officers of health are at present without statutory powers; they are purely advisory officers to a department which is also without powers, and unless this is rectified there is bound one day to be a rude awakening. The real difficulty that the Government has to settle is apparently the extent of the public health duties devolving under the Constitution on the provincial governments, but this is a difficulty that can only become greater the longer the settlement is postponed, and it is earnestly to be hoped that the question may yet be dealt with during the ensuing session in a manner that will give satisfaction to all.

Postponement of South African Medical Congress.

The fourteenth South African Medical Congress was to have met in Grahamstown on May 26th, 1913, but has had to be postponed owing to the lamented death from appendicitis of the President-elect, Mr. G. E. Fitz-Gerald, who held for many years the position of visiting medical superintendent of the Government Chronic Sick Hospital. He will be greatly missed and exceedingly difficult to replace in the Eastern Province of the Cape.

Vital Statistics.

The issue of the final report of the Census Commissioners for 1911 has up to date been awaited in vain. It is now alleged that no further report has been prepared on account of the expense, and because it was considered that the tables furnished are sufficient to supply the public with all necessary information. If this is so, the decision is to be regretted, for the tables that have been issued are not of much use to the general public, and census-taking loses much of its value if the information is not collated and given to the public in the form of a digest of the main features. The public is also still without trustworthy information as to the registration of births and deaths within the Union, and there is urgent need for the preparation and publication of an annual report on the subject. It is to be hoped that the public will insist upon the publication of the vital statistics of the Union, even if the preparation thereof is somewhat of an expense.

New Hospitals.

If there has been great development under Union in one direction more than another it has been in the provision of hospitals for the sick poor. In Natal, besides some smaller schemes afoot, it has been decided to build a new native hospital in conjunction with Grey's Hospital, Maritzburg, the corporation contributing one-half of the cost and the provincial government the other. In the Transvaal several new schemes have been carried out or are in contemplation. In the Free State there is a project under consideration for rebuilding the National Hospital at Bloemfontein. In the Cape, at Port Elizabeth, a new hospital is being built to replace the old Provincial Hospital, while at Maitland a new Chronic Sick Hospital is in the course of erection. At a large number of centres in this province the provision of a small cottage hospital is being considered, the erection of which has been rendered possible owing to the passing of the Hospitals Ordinance.

The New Witness Tariff.

A new tariff of fees for witnesses was proclaimed a few weeks ago in the Government *Gazette*, which at the time did not attract much attention, but which will surely demand action by the medical profession. The new tariff applies to civil as well as to criminal cases. All that a medical witness can claim under the tariff is one guinea per diem plus travelling expenses, with the limitation that where the travelling is done by steamer the guinea per diem is not to be paid for the days consumed in travelling. The extraordinary feature of the tariff is that it appears to take no account whatever of loss of time on the part of professional men, and in this country of great distances it will operate hardly on this class of citizens, and particularly on the country practitioner, who as often as not has to run his practice single-handed.

Proposed Research Laboratory, Kimberley.

In connexion with the Kimberley Hospital a proposal has been adopted to establish a research laboratory in commemoration of the late Mr. T. Tyson, one of the directors of De Beers, and for many years one of the board of managers of that institution. The proposal originated from Dr. A. Fuller, a leading practitioner in Kimberley, who has obtained substantial promises of financial support from the borough council and De Beers Company. The laboratory will be established as an ordinary department of the hospital, but is to be available also for outside work. There is plenty of scope for research work on the diamond fields, and Dr. Fuller is to be congratulated on the success which has attended his efforts in bringing his scheme to a successful issue.

Dec. 14th, 1912.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Rural Water-supplies in Bengal.

THE first tangible result of the recent conference on the rural water-supply in Bengal appears in the form of a Government resolution, which strongly emphasises the interest which the Government takes in the question, discusses the means of securing the purity of existing sources, and makes certain recommendations as to how this can be done. Other suggestions which came under the consideration of the conference are mentioned, and the hope is expressed that the Government will be able in due course to convene a larger conference to advise them further on the question.

Fund to Found Cottage Homes for Women.

It is proposed to raise a fund in Simla for the purpose of founding a home for lone, aged women, of European parentage, in straitened circumstances, more especially those who, having no relatives with whom they can live, are in the possession of some small means, such as a small pension, &c., just sufficient to provide for ordinary living, but not for rent. In the first instance, the aim is to obtain sufficient money to build two or three quarters of two rooms each, with the necessary accommodation for servants. The buildings when erected would be vested in trustees, and the home would be administered by a local committee. It is assumed that the home, after building and furnishing, will be to a very great extent self-supporting. No doubt it will be necessary to provide some funds, but it is believed that once started the object will appeal to the public as one deserving of endowment. A woman, if otherwise suitable, will be eligible for admission whatever her religion. The nucleus of such a fund has already been obtained, and the project is now put before the Simla public for their sympathy and support.

The Dufferin Fund at Simla.

The Simla municipality has received a letter from the private secretary of the Lieutenant Governor forwarding a cheque for Rs.5000, received from His Highness the Gaekwar of Baroda, as a donation towards the construction of a new operation-room in the Dufferin Ward of the Ripon Hospital. The committee passed a vote of thanks to His Highness the Gaekwar, and resolved that the room be called the Maharaja Sayaji Rao Gaekwar Operation-room.

New Hospital for Bannu.

It is proposed to commemorate the work of Dr. T. L. Pennell and his colleague, Dr. Barnett, who lost their lives through devotion to duty at Bannu in March last, by the erection of a new hospital for men and women at Bannu. It had been Dr. Pennell's intention to demolish the old dilapidated and insanitary wards, which were cheaply erected nearly 20 years ago, and to build on the site a new hospital for women and new wards for men as funds permitted. Foundations had already been dug, and the Viceroy was to have laid the foundation stone of a new ward for women when the tragedy of March last temporarily put a stop to the work. It will be generally admitted that no more fitting memorial of Dr. Pennell's splendid self-sacrificing life work could be suggested than the completion of the design he had in view, and there is no doubt that his many friends and admirers will hasten to support such an excellent project. The new hospital will contain an out-patients' block, with its dispensary, consulting-rooms, and theatres; a large hall in which patients will gather for the evangelistic addresses which are given every morning; wards and private wards for men and women; store rooms, and assistants' quarters. The construction will largely follow the line of the Peshawar Mission Hospital, and the cost is estimated at Rs. 90,000. The promoters of the scheme are anxious that the work of rebuilding the hospital should be undertaken as soon as possible.

Establishment of another Leper Asylum.

His Highness the Maharaja Saheb of Idar has recently decided to open an asylum for the lepers of Gujarat at Bhavnath. This place, which is situated in the Bhiloda Taluka of the Idar State, is generally held sacred by the Hindus, and the silt of the tank attached to the temple of the god Shiva is supposed to possess the healing properties against leprosy. All lepers from the province of Gujarat who resort to the above institution will be provided with rations or cooked food as they desire, free of all cost without limitation of period. The institution will be associated with the name of Sir George Sydenham Clarke, and will be known as "Sir George Clarke Poor-house, Bhavnath."

A New Hospital for Bombay.

The new Memorial General Hospital in Bombay was opened recently by Mr. S. M. Edwards, C.V.O., Commissioner of Police, Bombay. The hospital has been built in memory of Mr. Haji Ismail Nurmahomed, a well-known Cutchi Memon merchant, who died last year. His only son, Mr. Abdul Kader, has given 1 lakh of rupees towards the endowment fund, and 20,000 rupees towards preliminary expenses, and has promised 1200 rupees per month towards the maintenance of the hospital.

Hospitals for Europeans in Bombay.

A letter from the Government of India regarding the provision of hospital accommodation for infectious cases amongst Europeans and Eurasians came before the Bombay Municipal Corporation recently. The Government have hitherto been responsible for the provision of all hospital accommodation for Europeans. They now propose to build an infectious disease hospital, and ask the corporation to give a site adjoining the municipal infectious disease hospital and to contribute to the cost of maintenance. The matter was referred to the committee, Sir P. M. Mehta saying that he thought every consideration was to be shown to the European community in the matter, and that consistently with their responsibilities the corporation would be willing to do all in their power.

A Rabic Hospital for the Pasteur Institute.

One of the needs of Kasauli is a rabic hospital for the accommodation of patients in whom the antirabic treatment fails, and the Pasteur Institute recently invited the Punjab Government to contribute a sum of Rs.5000 towards the cost of such a hospital. The Government expressed willingness to contribute rateably according to the proportion of patients from the Punjab who go to Kasauli for treatment, and accordingly offered a contribution of Rs.2809. The financial committee of the legislative council will, when it meets, consider whether it is possible to provide a larger subscription.

Vaccination in Madras.

The joint report on the progress of vaccination in Madras for the year 1911-12 has just been issued. It includes the report on vaccination in the Presidency by the Inspector of Vaccination and Deputy Sanitary Commissioner, and that on the work done by the vaccine section of the King Institute at Guindy. The first calls for little comment, but in the latter there is, in addition to some interesting details regarding the manufacture and supply of vaccine, a reference to a passage of arms between the Director and the Sanitary Commissioner as to the cause of the indifferent success in certain districts achieved in the previous year. It is satisfactory, however, to know that the work of the vaccine section of the King Institute, in spite of the difficulties encountered in the shape of a short and indifferent supply of calves, is satisfactory, though under the most favourable conditions the total amount of vaccine supplied would have been 5000 cases short of that issued in 1908-09, the year of maximum output. The number supplied was 1,873,501, as against 1,853,657 in the previous year. The total expenditure on the department was Rs.51,699, but credits for sale of calves, &c., and receipts for vaccine supplied to private bodies reduce this to Rs.43,520.

Opium Legislation and Ceylon.

A Ceylon paper says that at the time when the agitation for the suppression of opium was going on in Ceylon there was a great deal of what has since been shown to be extreme exaggeration. The most groundless and absurd of all contentions put forward was the one that opium led to crimes of violence, which was persisted in in spite of the protest and the most conclusive evidence adduced by such men as the late Dr. Rockwood. The article concludes by saying that the reason why more harm has not been done in Ceylon by the opium legislation is because the amount of drug-taking is infinitesimal.

The Imperial Entomologist.

Mr. Maxwell Lefroy, Imperial Entomologist at Pusa, has been allowed to resign the Government service from Dec. 15th. He is to be appointed Professor of Entomology at the Imperial College of Science and Technology, South Kensington.

Dec. 4th, 1912.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

The Fairfield Fever Hospital.

THE inquiry into the management of the Fairfield infectious diseases hospital near Melbourne is still dragging on a protracted course. Evidence has been given by former patients and their friends both for and against the hospital, and an endeavour has been made to show that the resident surgeons performed post-mortem examinations or operations without permission, though both allegations have been specifically denied by the medical officers concerned. So far as can be gathered at present there appear to have been inharmonious relations both amongst members of the committee of management and the general staff of officials. The allegations against the medical and nursing management are for the most part very trivial up to the present.

Brisbane Hospital.

A sum of £3000 has been presented to this institution under the bequest of the late Walter Hall for the purpose of building a new operating theatre.

Maternity Bonus.

So far as the Federal bonus of £5 on all viable births has been in operation, figures show that less than 50 per cent. of mothers have claimed. Attention has been called in the Federal Parliament to the fact that the Women's Hospital authorities in Melbourne are compelling patients to pay for treatment by assigning a portion of the bonus to the hospital.

Melbourne City Health Officer.

Dr. J. Jamieson, the city health officer, has resigned his position after an occupancy of 27 years. Dr. Jamieson is a graduate of Glasgow University and arrived in Victoria in 1868. He soon settled in Melbourne, where he began to take an active part in all medical interests. He was editor of the *Australian Medical Journal*, and contributed popular articles to other periodicals. Some two years ago, owing to advancing years, Dr. Jamieson relinquished his position as

honorary indoor physician at the Alfred Hospital and resigned his lectureship in medicine at the University. A number of his old pupils subscribed a sum of money, intending to make a presentation, but at the wish of Dr. Jamieson it was devoted to a scholarship, to be known as the Jamieson prize. Dr. Jamieson has seen great changes in the sanitary condition of Melbourne owing to the introduction of a sewerage system. The general rate of mortality has dropped during his time from 21 to 12 per 1000 of population.

A Case of Leprosy.

An old man was recently discovered living near Melbourne suffering from leprosy. He was at once sent to the lazarette at Port Philip Head, and subsequent inquiries suggest that he contracted the disease in Queensland, where he was for six years cook at the Straybrooke Leper Asylum. In the last ten years he has wandered all over Australia.

Insanity in Victoria.

The Inspector-General (Mr. E. Jones) in his annual report for 1911 says the number of registered insane rose from 5349 to 5449, which is only two-thirds of the increase for the previous year, and below that of the last seven years. The ratio of insane to general population is 1 to 250. A new asylum is in course of construction at Mount Park, near Melbourne. The sanitary arrangements of existing institutions are very poor. Dr. W. A. T. Lind has been appointed a whole-time pathologist and will organise an asylum pathological department. Dr. Patarinich is carrying out an elaborate series of von Pirquet tests in asylum patients. The average weekly cost per patient was 13*s.* 1½*d.*

Obituary.

The death is announced of Mr. John Tremearne, M.R.C.S. Eng., who arrived in Victoria about 1874. He was a native of St. Ives, Cornwall, and was a student at St. Bartholomew's Hospital and a resident medical officer at the Royal United Hospital, Bath. On arrival in Victoria he was appointed resident surgeon to the Creswick Hospital. Here he subsequently built up a very extensive general practice, and patients sought his opinion from all parts of the States. Owing to indifferent health Mr. Tremearne relinquished active practice in 1902 and established himself as a consultant in Melbourne. He leaves a widow and three sons.

Trouble at Perth Hospital.

The hospital board recently recommended that the medical superintendent, the matron, and the secretary should be dismissed and applications invited to fill their places. No reason has been given for the action, and questions asked in the House elicited nothing but that the Government would support the board's action.

Radium.

Some time ago the Victorian Government asked representatives of the metropolitan hospitals to discuss the advisability of establishing a Government radium bank. The delegates advised against any common stock, but thought about £1500 worth given to each of the hospitals with special skin departments would be of the most practical value at the present time. The Premier, Mr. Watt, has now offered to give £1000 each to the Melbourne, Alfred, and St. Vincent's hospitals on condition that the hospitals find the other £500 for themselves.

Vaccination.

A Select Committee of the Victorian Legislative Assembly has been nominated to inquire into the subject of vaccination. The chairman, Mr. A. Outtrim, has for some years annually introduced a Bill to abolish compulsory vaccination in Victoria, but it has always been defeated. Dr. J. H. L. Cumpston, assistant Federal quarantine officer, was the first witness, and he stated that about 62 per cent. of Victorians were vaccinated. He advocated vaccination and re-vaccination very warmly.

Nov. 30th, 1912.

THE Society for the Study of Inebriety will hold a discussion on Psycho-therapy and the Inebriate, to be opened by Dr. Hugh Crichton Miller, on Tuesday, Jan. 14th, at 4 P.M., at 11, Chandos-street, London, W.

Medical News.

UNIVERSITY OF OXFORD: RADCLIFFE TRAVELLING FELLOWSHIP, 1913.—An examination for a Fellowship of the annual value of £200, and tenable for three years, will be held during Hilary Term, 1913, commencing on Tuesday, Feb. 18th. Candidates must have passed all the examinations required by the University for the degree of Bachelor of Arts and for the degree of Bachelor of Medicine. The successful candidate must before election declare that he intends to devote himself during the period of his tenure of the Fellowship to the study of medical science and to travel abroad with a view to that study. The Regius Professor of Medicine and the examiners, two months before the expiration of the second year after the election of each Fellow, present a report on the work done by him to the electors, who may, if they think the report unsatisfactory, declare the Fellowship forfeited. The examination will occupy four days, papers will be set in physiology, pathology, and preventive medicine, and a subject will be proposed for an essay. There will also be a practical examination in pathology. Any candidate desiring to offer in addition a special branch of either medicine or surgery must send notice of this to the Regius Professor of Medicine on or before Feb. 10th. All intending candidates should send their names, addresses, qualifications, &c., to the Regius Professor of Medicine, University Museum, on or before Monday, Feb. 10th.

The following degrees have been conferred:—

D.M.—C. D. H. Corbett.
B.M., B.Ch.—H. T. Evans, G. H. Varley, G. Stanger, R. A. Fawcus, E. Scott, and J. Sainsbury.

The following have been successful in the under-mentioned examinations:—

SECOND EXAMINATION FOR THE DEGREE OF BACHELOR OF MEDICINE.

Materia Medica and Pharmacology.—A. C. Ballance, L. R. Broster, L. G. Brown, F. B. Chavasse, R. C. Fairbairn, R. St. A. Heathcote, R. J. Inman, E. E. Mather, N. A. Sprott, T. O. Thompson, and H. A. B. Whitelocke.
Pathology.—F. W. Browne, E. W. Carrington, J. C. Davies, R. St. A. Heathcote, E. W. N. Hobhouse, A. Jackson, M. R. Lawrence, C. W. B. Littlejohn, H. G. Morris, G. S. Robinson, A. H. Southam, G. Stanger, A. B. Thompson, and W. W. Waller.
Forensic Medicine and Public Health.—T. B. Batchelor, G. E. Beaumont, R. F. B. Bowes, H. T. Evans, R. A. Fawcus, S. Hibbert, A. Juett, R. C. Ozanne, and W. R. Reynell.
Medicine, Surgery, Midwifery.—G. E. Beaumont, G. W. Carte, R. A. Fawcus, W. J. Hart, S. Hibbert, A. Juett, E. O'Connor, R. C. Ozanne, W. R. Reynell, J. Sainsbury, E. Scott, and G. H. Varley.

FIRST B.M. EXAMINATION.

Organic Chemistry.—A. G. East, F. C. Gladstone, W. R. Greenshields, A. Hodgkinson, R. M. Humphreys, R. W. Lush, J. J. Savage, J. Le R. Shipley, D. H. Skinner, C. H. Terry, A. E. Thomas, W. S. Tunbridge, B. E. Wall, and K. F. D. Waters.
Human Anatomy and Human Physiology.—R. W. Bowell, W. Brown, B. A. Bull, J. J. Conybeare, K. M. Dyott, O. H. Gotch, T. L. Price, G. B. Tarring, and S. W. F. Underhill.

UNIVERSITY OF CAMBRIDGE.—At a congregation held on Dec. 19th, 1912, the following degrees were conferred:—

M.D.—B. Day and (by proxy) R. A. P. Hill, Caius; and F. S. Scales, Jesus.
M.B., B.C.—T. H. Just, Trinity; and H. T. Depree, Clare.
M.B.—J. W. Dew, Clare.
B.C.—G. V. Bakewell, Clare.
Examination for Medical and Surgical Degrees.—The following have satisfied the examiners in the three sections:—F. S. Adams, Christ's; J. W. Adams and H. C. Attwood, Caius; T. E. Banister, Christ's; H. W. Barnes, Jesus; F. S. Bedale, Clare; E. Calvert, St. John's; W. T. Canning-Pearce, Emmanuel; D. G. Cherrington, Trinity; A. C. Clifford, Emmanuel; A. J. Couchman, Caius; H. G. Earle, Downing; J. V. Fiddian, Emmanuel; E. C. Hardwick, Corpus Christi; T. L. Hardy, Selwyn; J. W. Joynt, Emmanuel; W. C. D. Maile, Pembroke; C. G. H. Morse, Emmanuel; H. J. S. Morton, Trinity; T. H. Oliver, Caius; T. E. Osmond and G. M. Parker, Emmanuel; S. H. Rouquette, King's; L. T. Rutherford, Clare; A. S. Seabrooke, Christ's; F. B. Smith, King's; G. W. Spencer, St. John's; F. S. Tinker, Pembroke; J. W. Tonks, Caius; C. W. Warner, Pembroke; and A. M. Zamora, Christ's.

LONDON SCHOOL OF TROPICAL MEDICINE.—The following were the successful candidates at the examination held at the end of the fortieth session (October–December, 1912):—

S. H. Daukes, A. Moore, J. A. Beattie (Colonial Service), Major de V. Condon, I.M.S., G. R. Footner, A. Ismail, E. H. Mayhew (Colonial Service), Major G. Browse, I.M.S., G. L. Johnston, J. L. Pawan (Colonial Service), W. C. P. Winter (Colonial Service), A. K. Sinha, R. S. Turton (Colonial Service), C. H. Marshall (Colonial Service),

G. E. Dodson, F. D. Bana, F. E. Whitehead (Colonial Service), H. C. Swertz (Colonial Service), F. Rice (Colonial Service), A. F. Wallace, H. G. F. Spurrell, W. A. Lamborn, J. Dalrymple, P. J. Dunn, E. M. Condy (Colonial Service), A. da Gama, F. G. Rose, J. M. Benson (Colonial Service), H. W. McCauley Hayes, J. F. Hoare (Colonial Service), C. W. Mason, R. C. Chakraborty, R. A. Murphy, E. T. MacIntyre (Colonial Service), and W. E. Roberts (Colonial Service).

UNIVERSITY OF LEEDS.—At a Congregation of the University held recently degrees were conferred as follows:—

Bachelor of Medicine and Bachelor of Surgery.—J. C. Metcalfe (with first-class honours), H. Angel, J. H. Blackburn (with second-class honours), M. V. Mitton, J. J. Pickles, M. Peto, S. Samuel, H. W. Symons, and B. W. F. Wood.
Final M.B. and Ch.B.—Part I.: W. D. Anderton, S. N. Cohen, J. C. Gillies, F. King, H. R. Knowles, W. H. Lonen, J. J. Pickles, W. W. Robinson, H. Shochet, H. L. Taylor, C. H. Wilson, and J. Wright.
Second M.B. and Ch.B.—Part I: H. S. Bhalla, H. Franklin, H. M. Holt, C. E. Leake, H. S. Lockwood, J. Rosencwige, J. Smith, R. S. Topham, and A. Umanski. Part II.: H. S. Bhalla and M. Hutchinson.
Diploma in Psychological Medicine.—Alice B. M. Babington.
Diploma in Public Health.—H. F. Horne.

DIPLOMA IN DENTAL SURGERY.

First Professional Examination.—E. A. Rogerson and N. T. Williamson.
Final Examination.—H. P. Shoesmith.

VICTORIA UNIVERSITY OF MANCHESTER.—At examinations held in December the following candidates were successful:—

FINAL B.D.S. EXAMINATION.

Kate Latarche.

THIRD B.D.S. EXAMINATION.

Dental Anatomy and Histology.—M. C. Paterson.

DIPLOMA IN DENTISTRY (FINAL EXAMINATION).

D. H. Sutton.
Systematic Surgery and Dental Surgery.—Robert Ramsbottom.

DIPLOMA IN DENTISTRY (THIRD EXAMINATION).

Arthur Aldred, H. A. Caldwell, Douglas Esilman, W. J. Slater, and E. A. Watson.
Anatomy, and Dental Anatomy and Histology.—Harry Broughton.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berlin:* Dr. Karl Kaiserling, of the University Pathological Institute, has been promoted to an Extraordinary Professorship.—*Bern:* Dr. H. Wildbolz, whose urological work has brought him into considerable prominence, has been appointed Chief of the Surgical Department of the Insel Hospital, in succession to the late Dr. Tavel.—*Bologna:* Dr. Donato Calabrese has been recognised as *privat-docent* of Surgery and Operative Medicine.—*Buenos Aires:* Dr. Bruno Oetteking, assistant in the Heidelberg Anatomical Institute, has been offered the post of Director of the Anatomical Museum.—*Budapest:* Dr. L. Blaskovich, *privat-docent* of Ophthalmology, and Dr. S. Gerloczy, *privat-docent* of Infectious Diseases, have been granted the title of Extraordinary Professor.—*Copenhagen:* Dr. Bergtrup-Hansen has been recognised as *privat-docent* of Medicine.—*Florence:* Dr. P. Palagi, of Bologna, has been recognised as *privat-docent* of Orthopædic Surgery.—*Halle:* Dr. J. Sowade has been recognised as *privat-docent* of Dermatology and Syphiligraphy. The medical faculty is now in the throes of a student strike, the bone of contention being the clinical clerkships in the University Medical Clinic, which the students who have passed their "physicum" examination consider that they have a better claim upon than foreign students who have been excused this rather severe test, but who have been hitherto allowed equal rights with the regular Halle students.—*Königsberg:* Dr. Ernest Sachs, *privat-docent* of Midwifery and Gynæcology, has been appointed Oberarzt of the University Gynæcological Clinic.—*Leipsic:* Dr. M. Löhlein, *privat-docent* of pathological anatomy, and Dr. P. Schmidt, *private-docent* of hygiene, have been promoted to Extraordinary Professorships.—*Modena:* Dr. G. Bolognesi has been recognised as *privat-docent* of External Pathology, and Dr. R. Pardo as *privat-docent* of Ophthalmology.—*Munich*: Dr. L. Kielleuthner has been recognised as *privat-docent* of Urology.—*Naples:* Dr. Francesco Stinelli has been recognised as *privat-docent* of External Pathology.—*Pisa:* Dr. Luigi Fiori has been recognised as *privat-docent* of External Pathology.—*Rome:* Dr. Guglielmo Bilancioni has been recognised as *privat-docent* of General Pathology.—*Rostock:* Dr. E. Muthmann, prosector in the Anatomical Institute, has been recognised as *privat-docent* of Anatomy.—*Saratoff:* Dr. A. M. Leokoffski, *privat-docent* in the University of Kharkoff, has been appointed to the chair of Neurology and Psychiatry.—*Strasburg:* Dr. M. von Pfandler, professor of children's diseases in Munich, has been offered the corresponding chair, in succession to Dr. A. Czerny, who goes to Berlin. He has also been offered the late Professor Soltmann's Chair in Leipsic.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Alfred Genzmer, extraordinary professor of surgery in the University of Halle, aged 61. In addition to a number of works on special subjects he has published, in parts, an important surgical handbook.—Dr. Ludwig Wille, formerly professor of psychiatry in the University of Basle, aged 78.—Dr. Edward J. Kiepe, adjunct professor of materia medica and pharmacology in the Medical Department of the University of Buffalo.—Dr. John E. Brackett, formerly professor of medicine in Howard University School of Medicine, Washington.—Dr. G. Dirner, *privat-docent* of gynæcology in the University, and director of the Maternity, Budapest.—Dr. Gustav Tiling, formerly professor of surgery in the Clinical Institute of the Grand Duchess Helena Palovna.—Dr. Edward Clason, formerly professor of anatomy in the University of Upsala.—Dr. James C. Cox, formerly lecturer in medicine in the University of Sydney.—Dr. J. W. McLane, formerly professor of midwifery and gynæcology in the New York College of Physicians and Surgeons.—Dr. Cæsar A. von Ramdohr, formerly professor of midwifery and gynæcology in the New York Post-graduate School.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Tuberculosis Prevention (Ireland) Bill.

THE text of the Tuberculosis Prevention (Ireland) Bill, which Mr. BIRRELL, the Chief Secretary to the Lord Lieutenant of Ireland, introduced in the House of Commons recently, has now been published. Its object is "to prevent the spread and provide for the treatment of tuberculosis, and for other purposes connected therewith." A memorandum attached to it explains the amendments which are proposed in the existing law, and is to the following effect:—

"The main object of the Bill is to amend the law under which provision is made by local authorities in Ireland for the treatment of tuberculosis.

Clause 1.—Under this clause the provisions of Part I. of the Tuberculosis Prevention (Ireland) Act, 1908, with respect to the compulsory notification of tuberculosis will have effect throughout the whole of Ireland instead of only in the sanitary districts in which those provisions are adopted.

Clause 2.—This clause provides that in any county in which a county council has established a tuberculosis dispensary under the Act of 1908, cases of tuberculosis are to be notified to the medical superintendent of the dispensary instead of the local medical officer of health.

Clause 3.—This clause alters the provisions of the Act of 1908 as to the classification of expenses incurred by county councils in connexion with tuberculosis hospitals and dispensaries, and provides that all such expenses are to be raised by means of the poor rate. The clause also contains a temporary provision enabling councils to meet expenses incurred by them in the execution of the Act of 1908 during the present financial year.

Clause 4.—This clause empowers county councils providing a common hospital or dispensary to arrange as to the proportions in which each county is to contribute to the expenses. Under the Act of 1908 the contributions are to be based on the rateable value of the counties.

Clause 5.—This clause enables a joint hospital provided by sanitary authorities under the Public Health (Ireland) Acts for the treatment of tuberculosis to be transferred to a county council.

Clause 6.—This clause removes a doubt as to the classes of persons who may be admitted to a tuberculosis hospital established under the Act of 1908.

Clause 7.—This clause empowers the Local Government Board to facilitate the establishment of a tuberculosis dispensary by transferring to a county council for that purpose any land which may be vested in the Board."

HOUSE OF COMMONS.

MONDAY, DEC. 30TH.

Medical Men and the Insurance Act.

Mr. F. HALL (Dulwich) asked the Chancellor of the Exchequer whether, under the National Insurance Act, an insured person would be entitled to be treated by his own medical practitioner; and, if so, whether, in the event of a number of doctors refusing to accept service under the Act, any amendment thereof would be sought to meet the

situation thus arising.—Mr. LLOYD GEORGE answered: An insured person is entitled to a free choice amongst the doctors registered on the panel, subject to the conditions defined by Section 15 (2) of the Insurance Act. If, however, the doctor of his choice declines to go on the panel, the insured person is not entitled to claim as a right that he should be treated by his own medical practitioner at the expense of the Insurance Fund.

Mr. F. HALL: In the event of the medical practitioner not serving on the panel, is the insured person to be at the mercy of the Insurance Commissioners or the Insurance Committees?—Mr. LLOYD GEORGE: If the honourable Member will take the trouble to read up the Act he will see that there is only a right of choice amongst the medical men who are on the panel, and if any private arrangements are made with doctors outside the panels, they must be subject to allowance by the Insurance Committees and the Insurance Commissioners.

Captain MURRAY: Can the right honourable gentleman say that it is now practically certain that a sufficient number of doctors will come forward to work the Act?—Mr. LLOYD GEORGE: I must not express an opinion on that at present.

Earl WINTERTON: May I ask what the right honourable gentleman proposes to do in regard to counties where all the doctors refuse to serve, as in the case of Sussex?—Mr. LLOYD GEORGE: I should in the first place have to wait and see whether there are any counties of that kind.

The Tuberculosis Grant in Ireland.

Mr. HUGH BARRIE asked the Chancellor of the Exchequer whether he was aware that, until it was definitely known what grant in aid was to be provided by the Treasury, Irish county councils were reluctant to adopt Part II. of the Tuberculosis Act, 1908, with its financial responsibilities; and whether he would take an early opportunity of intimating the amount of the Treasury grant.—Mr. LLOYD GEORGE replied: The Irish Local Government Board are now preparing a circular explaining the distribution of the grant, including the additional sum to be provided in connexion with the provision for non-insured persons.

TUESDAY, DEC. 31ST.

A Case of Sanatorium Benefit.

Mr. H. LAWSON asked the Chancellor of the Exchequer on what basis and on what actuarial calculation he arrived at the amount of £200, stated by him in his speech at Aberdeen, which he said the blacksmith, then under treatment at the London Hospital, would receive in return for his contribution of 4s. 8d. under the National Insurance Act.—Mr. LLOYD GEORGE said in reply: The amount referred to was calculated according to the average cost of sanatorium treatment paid up to that date by the Middlesex Insurance Committee and to the period of treatment estimated to be necessary in this particular case.

The Discussion of Medical Benefits.

On the motion for the adjournment of the House,

Mr. WORTHINGTON EVANS said that a blocking motion had been put on the notice paper by the honourable Member for Huddersfield (Mr. Sherwell) which prevented the discussion of urgent questions in regard to the administration of medical benefit under the National Insurance Act. He was thus prevented from calling attention to the fact that the Insurance Commissioners had on Dec. 27th and Dec. 30th issued circulars which were entirely contrary to the Act.

Mr. LLOYD GEORGE said that he had nothing to do with the blocking motion and he was anxious to make a statement to the House before the Christmas holidays with regard to medical benefit.

The SPEAKER thought that the discussion would not be in order unless the blocking motion was removed from the paper, and he suggested that the honourable Member for Huddersfield should withdraw it temporarily and so allow the discussion to be taken on the following day.

Mr. SHERWELL intimated that he would now temporarily withdraw his motion, which he had put on the paper to force upon the consideration of the House the anomaly of this part of its procedure.

WEDNESDAY, JAN. 1ST.

Private Arrangements in Lieu of Medical Benefit.

On the motion for the adjournment of the House,

Sir PHILIP MAGNUS raised a matter concerned with the administration of medical benefit. He was sorry that the Chancellor of the Exchequer was unable to be present through indisposition. He said that Subsection 3 of Clause 15 of the National Insurance Act laid down that insured persons would in lieu of receiving medical benefits be allowed to make their own arrangements for receiving medical attendance and treatment, including medicines and appliances, and in such case the Insurance Committee should, subject to the Regulations, contribute from the funds out of which the medical benefit was payable towards the cost of the medical treatment. He wanted to know whether in such cases medical men who had rushed upon the panel would be forced upon these persons. He wanted a clear and definite reply whether, under Section 15 (3) of the Act, the Local Insurance Committee was not required to allow any insured person to have an option to make his own arrangements for receiving medical treatment, including medicine and appliances, from any medical man of his choice.

Sir RUFUS ISAACS (the Attorney-General) said, in reply, that Subsection 3 of Section 15 of the National Insurance Act did not require the Insurance Committee to allow such arrangements to be made. What the section did require was that the Insurance Commissioners should make Regulations authorising the Insurance Committee to allow such an arrangement. What the Insurance Commissioners had to do was to vest a discretion in the Insurance Committee. The Insurance Committee could exercise that discretion and, subject to the Regulations, the Insurance Committee could then contribute out of the funds for the purpose of providing the money for medical benefit. The Insurance Commissioners were required to issue Regulations to vest this discretion in the Insurance Committee. But the Insurance Committee was not required to allow these arrangements to be made, but was required simply to exercise its discretion in the matter.

Mr. WORTHINGTON EVANS said that he now understood that Subsection 3 applied to medical men whether they were on the panel or not. Might the county Insurance Committees permit private arrangements?

Sir RUFUS ISAACS: Subject to the regulations which the Insurance Commissioners made.

Mr. WORTHINGTON EVANS said that it was clear, then, that whether the medical man was on the panel or not the arrangements could be made with him, provided that the local County Committee gave permission for that to be done. There were a large number of medical men who were desirous to go on treating their own patients. They were not prepared to take the risk of going on the panels, because they might have placed on them a portion of the derelicts—patients whom other medical men would not accept (loud Ministerial cries of "No"). That was in the Act (renewed cries of "No"). Under the Act the residue of patients not chosen by medical men would be apportioned amongst the medical men on the panel, or would be otherwise provided for on a whole-time service. Statements had been made with the intention of stampeding the doctors to go on the panels. They had been told by the Insurance Commissioners that if a private patient was to be allowed to continue under a private arrangement with his doctor, that doctor had to be on the panel. That statement was false.

During the latter part of the honourable member's speech he was interrupted by cries of "Masterman," and "Give time for a reply," but he was still addressing the House at a quarter past eleven o'clock, when the half-hour allowed for the discussion of subjects on the motion for adjournment expired.

BOOKS, ETC., RECEIVED.

APPLETON, D., AND COMPANY, New York and London.

A Manual of Instruction in the Principles of Prompt Aid to the Injured. By Alvah H. Doty, M.D., late Health Officer of the Port of New York; late Major and Surgeon, Ninth Regiment N.G.N.Y. Fifth edition. Price 6s. net.

BELL, G., AND SONS, LIMITED, London.

Hoblyn's Dictionary of Terms Used in Medicine and the Collateral Sciences. Fifteenth edition. Revised throughout, with numerous Additions. By John A. P. Price, B.A., M.D. Oxon., M.B. Lond. Price 10s. 6d.

BLACK, ADAM AND CHARLES, London.

Peeps at Industries. Tea. By Edith A. Browne. Price 1s. 6d. net.

CHATTO AND WINDUS, 111, St. Martin's-lane, London, W.C.

Herbert Fry's Royal Guide to the London Charities. 1913. Edited by John Lane. Price 1s. 6d.

CHURCHILL, J. AND A., London.

A History of Chemistry from the Earliest Times till the Present Day. By the late James Campbell Brown, D.Sc. Lond., LL.D. Aberd., Professor of Chemistry in the University of Liverpool. Price 10s. 6d. net.

The Medical Directory, 1913. Price 14s. net.

An Introduction to Dental Anatomy and Physiology, Descriptive and Applied. By Arthur Hopewell-Smith, L.R.C.P. Lond., M.R.C.S. Eng., L.D.S. Eng. Price 18s. net.

CLARENDON PRESS, Oxford.

The Works of Aristotle. Translated into English. De Motu Animalium. De Incessu Animalium. Price 2s. net.

COLLIERY GUARDIAN CO., LIMITED, 30 and 31, Furnival-street, Holborn, E.C.

Miners' Nystagmus. Its Causes and Prevention. By T. Lister Llewellyn, M.D., B.S. Lond., Tyndall Research Mining Student of the Royal Society. With a Preface by Professor J. S. Haldane, F.R.S., M.D., and a Legal Appendix by Douglas Knocker, M.B. Lond., M.R.C.S., L.R.C.P., D.P.H., Barrister-at-Law. Price not stated.

COLUMBIA UNIVERSITY PRESS, New York. FROWDE, HENRY, London.

Changes in Bodily Form of Descendants of Immigrants. By Franz Boas, Ph.D., Professor of Anthropology, Columbia University. Reprinted from the Reports of the United States Immigration Commission. Price 7s. 6d. net.

CONSTABLE AND CO., LIMITED, London. HOUGHTON MIFFLIN COMPANY, Boston and New York.

The Blue Wall. By Richard Washburn Child. Price 6s.

FROWDE, HENRY, AND HODDER AND STOUGHTON, London.

A Manual of Elementary Zoology. By L. A. Borradaile, M.A., Lecturer in Zoology in the University of Cambridge. Price 10s. 6d. net.

FUNK AND WAGNALLS COMPANY, New York and London.

The Right of the Child to be Well Born. By George E. Dawson, Ph.D., Professor of Psychology, Hartford School of Religious Pedagogy. Price 75 cents net.

HAZELL, WATSON, AND VINEY, LIMITED, 52, Long Acre, London, W.C.

Hazell's Annual for 1913. Edited by Hammond Hall. Price 3s. 6d

JOURNAL OF NERVOUS AND MENTAL DISEASE PUBLISHING COMPANY, New York.

Nervous and Mental Disease Monograph. Series No. 1. Outlines of Psychiatry. By William A. White, M.D. Fourth edition. Revised and enlarged. Price $3.

KARGER, S., Berlin.

Die klinische Stellung der Sogennanten genuinen Epilepsie. Referate, erstattet auf der Tagung der Gesellschaft Deutscher Nervenärzte in Hamburg, 1912. Von Prof. Dr. E. Redlich in Wien und Geh.-Rat Prof. Dr. O. Binswanger in Jena. Price M.6.

KIMPTON, HENRY, 263, High Holborn, London, W.C.

Life and Letters of Dr. William Beaumont, including hitherto unpublished Data concerning the Case of Alexis St. Martin. By Jesse S. Myer, A.B., M.D., Associate in Medicine in Washington University, St. Louis. With an Introduction by Sir William Osler, Bart., M.D., F.R.S. Price 18s. net.

Muscle Spasm and Degeneration in Intrathoracic Inflammations, and Light Touch Palpation. By Francis Marion Pottenger, A.M., M.D., LL.D., Medical Director of the Pottenger Sanatorium for Diseases of the Lungs and Throat, Monrovia, California. Price 9s. net.

LEWIS, H. K., London.

Flatulence and Shock. By F. G. Crookshank, M.D. Lond., M.R.C.P. Price 2s. net.

LONGMANS, GREEN AND CO., London, New York, Bombay, and Calcutta.

Birmingham Studies in Social Economics and Adjacent Fields. Edited by Prof. W. J. Ashley, Ph.D. I. Environment and Efficiency. A Study in the Records of Industrial Schools and Orphanages. By Mary Horner Thomson, Woodbrooke Settlement. With a Preface by J. Rendel Harris, LL.D. Price 2s. net.

MACMILLAN COMPANY, THE, New York. MACMILLAN AND CO., LIMITED, London.

Stuttering and Lisping. By E. W. Scripture, Ph.D. Leipzig, M.D. Munich, Associate in Psychiatry, Columbia University. Price 6s. 6d. net.

A Laboratory Handbook for Dietetics. By Mary Swartz Rose, Ph.D., Assistant Professor, Department of Nutrition, Teachers College, Columbia University. Price 6s.

MARHOLD, CARL, Halle a.S.

Grundzüge für die Ernährung von Zuckerkranken, nebst praktischen Anweisungen für die Diabetesküche. (Nach weiland Dr. Gilberts Diabetesküche.) Von Professor Dr. Albert Albu in Berlin. Price, bound, M.4.

Physiologische und Therapeutische Wirkungen des Radiums und Thoriums. Von Dr. Alfred Fürstenberg, I. Assistenzarzt an der Hydrotherapeutischen Anstalt der Universität Berlin. Price M.1.80.

METHUEN AND CO., LIMITED, London.

A Catechism of Life. By Alice Mary Buckton. Price 1s. net.

MURBY, THOMAS AND CO., 6, Bouverie-street, London, E.C.

Fitness for Play and Work. By Eustace Miles, M.A. Prefatory Notes by General Sir R. S. Baden-Powell, K.C.B. Price, cloth, 1s. 6d. net; paper, 1s. net.

MURRAY, JOHN, Albemarle-street, London, W.

The Passing of Morbid Anatomy. The Harveian Oration for 1912, delivered at the Royal College of Physicians on St. Luke's Day, October 18, 1912. By Sir James F. Goodhart, Bart., M.D., LL.D., Fellow of the College. Price 1s. 6d. net.

The Problem of the Gasworks Pitch Industries and Cancer. The John Howard McFadden Researches. Price 6d. net.

NATIONAL HEALTH SOCIETY, 53, Berners-street, London, W.

Aids to the Injured and Sick. By Henry Willingham Gell, M.A., M.B. Oxon., M.R.C.S. Thirty-seventh edition (revised). Price 2d.

NATIONAL SOCIETY FOR THE PREVENTION OF CRUELTY TO CHILDREN, 40, Leicester-square, London, W.C.

Maimed or Whole? A Statement Relating to Operations on Children. By Robert J. Parr, Director of the N.S.P.C.C. Price 3d. net.

ROUSSET JULES, 1, Rue Casimir-Delavigne, et 12, Rue Monsieur-le-Prince, Paris.

Synthèse du "bacille" de Koch. Par Albert et Alexandre Mary. Price Fr.1.

SCIENTIFIC PRESS, LIMITED, London.

Isotonic Sea-water Injections. Practical Hints for Treatment. By Arthur Gregory Sandberg, M.D., and Dorothea Mary Tudor, M.B., Hon. Physicians to the Quinton Polyclinic for Treatment by Isotonized Sea-water. Price 2s. 6d. net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ABRAHAM, EDWARD SMITH, L.R.C.P. Lond., M.R.C.S., has been appointed House Surgeon at the Handel Cossham Hospital, Kingswood, near Bristol.

BOLT, RICHARD FRANK, L.R.C.P. Lond., M.R.C.S., has been appointed House Surgeon at the Bristol General Hospital.

CLARKE, RICHARD CHRISTOPHER, M.B., Ch.B. Bristol, L.R.C.P. Lond., M.R.C.S., has been appointed House Physician at the Bristol Royal Infirmary.

DENT, HOWARD H. C., M.B. Durh., F.R.C.S. Eng., L.R.C.P. Lond., has been appointed Honorary Surgeon to the Wolverhampton and Staffordshire General Hospital.

GOODDEN, HENRY WYNDHAM, M.B., Ch.B. Bristol, L.R.C.P. Lond., M.R.C.S., has been appointed House Surgeon at the Bristol Royal Infirmary.

GRIFFITHS, G., L.R.C.P. Lond., M.R.C.S., has been appointed House Surgeon to the Royal Hospital for Sick Children and Women, Bristol.

HARTY, JOHN PERCY INGRAM, F.R.C.S. Eng., M.B., B.Ch. Irel., has been appointed House Surgeon to the Ear, Nose, and Throat Department at the Bristol Royal Infirmary.

HOFFMANN, GEOFFREY, B.C. Cantab., M.R.C.S., L.R.C.P. Lond., has been appointed Medical Registrar at St. Thomas's Hospital.

JONES, T. W., M.B., Ch.B., M.D., D.P.H. Liverp., has been appointed Medical Officer of Health for the Borough and Rural District of Wrexham, School Medical Officer, and Medical Superintendent of the Joint Fever Hospital.

KELLY, I. P., M.B., B.Ch. Irel., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Rathvilly District of the county of Carlow.

LANG, JAMES MCDONALD, M.B., C.M. Glasg., has been appointed House Physician at the Bristol General Hospital.

MUNRO, J. R., M.D. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Spalding District of the county of Lincoln.

NEILSON, H. J., M.D. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Nottingham North District of the county of Nottingham.

PEARSON, ELLIS, F.R.C.S. Edin., L.R.C.P. Edin., has been appointed Medical Officer of Health by the Bideford (Devon) Urban District Council.

REYNOLDS, WILLIAM ALFRED, M.B., Ch.B. Bristol, has been appointed House Surgeon at the Royal Hospital for Sick Children and Women, Bristol.

RINTOUL, D. W., M.B., Ch.B. St. And., has been appointed House Physician at the Bristol General Hospital.

ROBERTS, J. F., M.B., Ch.B. Liverp., has been appointed Assistant Resident Medical Officer to Mill-road Infirmary of the West Derby Board of Guardians, Liverpool.

SMYTHE, GERALD ARTHUR, L.R.C.P. Lond., M.R.C.S., has been appointed Casualty House Surgeon at the Bristol General Hospital.

THOMSON, FREDERICK GEORGE, M.D. Lond., M.R.C.P. Lond., has been appointed Physician to the Royal Mineral Water Hospital, Bath.

THOMSON, H. HYSLOP, M.D. Glasg., D.P.H., has been appointed Tuberculosis Officer of the County of Hertford.

WILSON, J. J., M.D. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Anstruther District of the county of Fife.

WOOD, DUNCAN, F.R.C.S. Eng., L.R.C.P. Lond., has been appointed Senior Resident Medical Officer at the Bristol General Hospital.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ASHTON-UNDER-LYNE, DISTRICT INFIRMARY AND CHILDREN'S HOSPITAL.—Assistant House Surgeon. Salary £90 per annum, with board, residence, and laundry.

BIRKENHEAD UNION INFIRMARY.—Senior Resident Assistant Medical Officer. Salary £120 per annum, with board, washing, and apartments.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Third House Surgeon. Salary £75 per annum, with board, rooms, and laundry.

BLACKBURN AND EAST LANCASHIRE INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, residence, &c.

BRADFORD CITY EDUCATION COMMITTEE.—Female Assistant School Medical Officer. Salary £350 per annum.

BRISTOL ROYAL INFIRMARY.—Resident Casualty Officer for five months. Salary at rate of £50 per annum, with board, apartments, and laundry. Also Dental House Surgeon. Salary £100 per annum, with board, apartments, and laundry.

BUXTON, DEVONSHIRE HOSPITAL, Derbyshire.—Assistant House Physician for six months. Salary £100 per annum, with apartments, board, and laundry.

CALDERCRUIX AND DISTRICT.—Resident Medical Practitioner.

CAPETOWN, SOUTH AFRICAN COLLEGE.—Lecturer in Anatomy. Salary £300 per annum.

CARDIFF, KING EDWARD VII. WELSH NATIONAL MEMORIAL.—Tuberculosis Physician. Salary £450 per annum.

CARMARTHEN, JOINT COUNTIES ASYLUM.—Second Assistant Medical Officer. Salary £160 per annum, with board, lodging, washing, &c.

CENTRAL LONDON OPHTHALMIC HOSPITAL, Gray's Inn-road, W.C.—Bacteriologist and Pathologist. Salary £50 per annum. Also X Ray Officer.

DORCHESTER, DORSET COUNTY HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board and residence.

DUBLIN, PEAMOUNT SANATORIUM, Hazlehatch.—Resident Medical Superintendent. Salary £400 per annum, with house and light.

GLASGOW, GARTLOCH MENTAL HOSPITAL.—Junior Assistant Medical Officer. Salary £150 per annum.

GUY'S HOSPITAL DENTAL SCHOOL.—Executive Officer. Salary £200 per annum.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL, Haverstock Hill and Kentish Town.—Physician to Out-patients.

HELLINGLY, EAST SUSSEX COUNTY ASYLUM.—Third Assistant Medical Officer, unmarried. Salary £175 per annum, with board, apartments, washing, and attendance.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—House Physician for six months. Salary 30 guineas.

HULL ROYAL INFIRMARY.—Casualty House Surgeon for six months. Salary at rate of £60 per annum, with board and lodging.

LABORATORIES OF PATHOLOGY AND PUBLIC HEALTH, 38, New Cavendish-street, W.—Fourth Assistant Pathologist.

LANCASHIRE EDUCATION COMMITTEE.—School Medical Inspector. Salary £250 per annum.

LISCARD, VICTORIA CENTRAL HOSPITAL AND WALLASEY DISPENSARY, Cheshire.—House Surgeon. Salary £100 per annum, with board, lodging, washing, &c.

LIVERPOOL, ROYAL SOUTHERN HOSPITAL.—Honorary Consulting Gynæcologist. Also Honorary Assistant Surgeon.

LIVERPOOL, TOWNSHIP OF TOXTETH PARK WORKHOUSE AND INFIRMARY.—Assistant Resident Female Medical Officer, unmarried. Salary £125 per annum, with board, washing, and apartments.

LIVERPOOL UNIVERSITY, FACULTY OF MEDICINE.—Lectureship in Mental Diseases.

LONDON HOSPITAL, Whitechapel, E.—Surgeon.

LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W.—Assistant House Surgeon for six months. Salary at rate of 100 guineas per annum. Also Pathologist and Bacteriologist. Salary at rate of 50 guineas per annum.

MIDDLESEX HOSPITAL CANCER RESEARCH LABORATORIES.—Third Assistant. Salary £150 per annum.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.—Senior House Physician. Salary £50 per annum, with board and residence.

NOTTINGHAM GENERAL DISPENSARY.—Assistant Resident Surgeon, unmarried. Salary £170 per annum, with apartments, attendance, light, and fuel.

OXFORD COUNTY ASYLUM, Littlemore, near Oxford.—Junior Assistant Medical Officer. Salary £150 per annum, with apartments, board, and washing.

PAISLEY, ROYAL ALEXANDRA INFIRMARY, Barbour Park.—House Surgeon. Salary £60 per annum, with bed and board.

PERTH, COUNTY AND CITY OF PERTH ROYAL INFIRMARY.—House Surgeon. Salary £60 per annum, with board.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Physician for six months. Salary £75 per annum, with board, residence, and washing. Also Honorary Assistant Physician.

POPLAR AND STEPNEY SICK ASYLUM, Bromley, Middlesex, E.—Third Assistant Medical Officer. Salary £120 per annum, with rations, apartments, and washing.

REETH UNION AND RURAL DISTRICT COUNCIL, Yorkshire.—Medical Officer (Unker District) and Medical Officer of Health (whole district). Salaries £45 and £50 respectively.

ROYAL FREE HOSPITAL, Gray's Inn-road, W.C.—Female Junior Obstetric Assistant. Board, lodging, and washing provided. Also Radiographer and Medical Electrician. Salary £100 per annum.

ROYAL NATIONAL ORTHOPÆDIC HOSPITAL.—Junior Resident House Surgeon, unmarried, for six months. Salary at rate of £80 per annum.

ROYAL NAVAL MEDICAL SERVICE.—Twenty-five appointments.

ST. ALBANS, HERTS COUNTY ASYLUM, Hill End.—Junior Assistant Medical Officer. Salary £170 per annum, with board, lodging, and washing.

ST. MARY'S HOSPITAL, London, W.—Resident Assistant Anæsthetist for six months. Salary at rate of £100 per annum, with board and residence.

ST. PAUL'S HOSPITAL FOR SKIN AND URINARY DISEASES, Red Lion-square, W.C.—Honorary Surgeon.

STOKE-ON-TRENT, NORTH STAFFORDSHIRE INFIRMARY, Hartshill.—Pathologist. Salary £200 per annum.

UNIVERSITY COLLEGE HOSPITAL, OUT-PATIENT DEPARTMENT FOR MENTAL DISEASES, Gower-street, London, W.C.—Physician.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Physician and House Surgeon, each for six months. Salary £40, with board, lodging, and laundry.

WADSLEY, WEST RIDING ASYLUM, near Sheffield.—Fourth Assistant Medical Officer. Salary £140 per annum, with board, &c.

WAKEFIELD, CITY OF.—Assistant Medical Officer of Health. Salary £250 per annum.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon for six months. Salary £80 per annum, with board, rooms, and laundry.

YORK COUNTY HOSPITAL.—House Surgeon and House Physician for six months. Salary of each at rate of £100 per annum, with board, residence, &c.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of a vacancy as Certifying Surgeon under the Factory and Workshop Acts at Welshpool, in the county of Montgomery.

Births, Marriages, and Deaths.

BIRTHS.

DAVIS.—On Dec. 23rd, 1912, at Darelan, West Heath Drive, Hampstead, the wife of Edward D. Davis, F.R.C.S., of 81, Harley-street, of a son.

DROOP.—On Dec. 28th, 1912, at Madeley, Shropshire, the wife of Charles E. Droop, M.B., B.C. Cantab., of a son (stillborn).

FORBES.—On Dec. 22nd, 1912, at Granard, Eltham, the wife of J. Graham Forbes, M.D., M.R.C.P., of a daughter.

HUTCHESS.—On Dec. 30th, 1912, at Corbridge, Northumberland, the wife of H. J. Hutchens, D.S.O., of a son.

MACFADDEN.—On Dec. 27th, 1912, at Holmdale-road, West Hampstead, N.W., the wife of Arthur W. J. MacFadden, M.B., C.M., of a son.

ONSLOW-FORD.—On Dec. 26th, 1912, at Dobbins, Wendover, Bucks, the wife of Max Onslow-Ford, M.R.C.S., L.R.C.P., of a son.

SHIPWAY.—On Dec. 23rd, 1912, at 24a, Portland-place, the wife of Francis E. Shipway, M.A., M.D. Cantab., of a daughter.

STURDY.—On Dec. 28th, 1912, at Bolingbroke-grove, Wandsworth Common, S.W., the wife of H. Carlile Sturdy, M.D., of a son.

UPCOTT.—On Dec. 21st, 1912, at 15, Albion-street, Hull, the wife of Harold Upcott, F.R.C.S., of a son.

DEATHS.

COLBY.—On Dec. 22nd, 1912, at The Mount, Malton, Yorkshire, William Taylor Colby, M.D., J.P., aged 85 years.

FORBES.—On Dec. 25th, 1912, at Eastwood, Notts, Duncan MacDonald Forbes, F.R.C.S. Edin., aged 75 years.

LOWE.—On Dec. 27th, 1912, at May Bank, Rugeley, Staffs, Cecilia, widow of the late George Lowe, F.R.C.S., of Burton-on-Trent, in her 89th year.

MONTGOMERY.—On Dec. 25th, 1912, at Clarence-place, Penzance, James Barclay Montgomery, F.R.C.P., M.D., J.P., aged 83 years.

NORTON-TAYLOR.—On Dec. 27th, 1912, suddenly, at Leyland House, Bromley, Kent (the residence of his son-in-law), Arthur Norton-Taylor, M.R.C.S., L.R.C.P.

REDFERN.—On Dec. 22nd, 1912, at Templepatrick House, Donaghadee, Peter Redfern, M.D. Lond., F.R.C.S. Eng., D.Sc., formerly Regius Professor of Anatomy and Physiology, Queen's College, Belfast, aged 91 years.

ROBBINS.—On Dec. 23rd, 1912, at Walpole-road, Brighton, Colonel Henry John Robbins, late R.A.M.C., aged 67 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

MEDICAL PROGRESS IN WESTERN CANADA.

THE city of Victoria, Vancouver Island, requires a new hospital, the accommodation in the Royal Provincial Jubilee Hospital, built 20 years ago, being far too cramped for the growing population. During the past summer the ladies of Victoria obtained promises of £20,000 for the purpose, and to that sum the city will now add £40,000. In the appeal to property-holders to vote this grant, recommended by the city council, the Victoria Medical Society took a prominent part, holding it the duty of the medical profession to advise the citizens when its expert knowledge gave its counsel special weight. The medical profession in Victoria is very united, and that in part because the hospitals have no visiting staff, but every practitioner has an equal right to send his cases into hospital and treat them there. Thus the younger practitioners have opportunity to do what surgical work they choose, consequently there is a high all-round level of operating skill; no one feels at a disadvantage, and all are eager for the increase of hospital accommodation.

A correspondent writes:—Dr. G. H. R. Gibson, of Vancouver, who recently gave in the columns of THE LANCET a favourable account of practice in the Far West, has recently returned to Vancouver from a trip to Australia, where he has been in medical charge of 65 cadets of the Vancouver High School, who have been touring in Australia and New Zealand for five months, seeing for themselves how other parts of the empire are run. Dr. Gibson seems to have earned golden opinions on all hands.

HEALTH IN THE BAHAMAS.

A REPORT by the Acting Governor of this colony (Mr. W. Hart Bennett, C.M.G.) was issued as a Parliamentary paper on Dec. 19th, 1912. It gives the estimated population as 55,072, and states that the general health during the year 1911 was good, except for a few sporadic cases of typhoid fever. Recently there has been a mild, though widespread, epidemic of measles. The birth-rate was 3·4 per cent. and the death-rate 2·1 per cent. The maximum mean temperature was 81·7° F. and the minimum 71·5°, and the rainfall was 40·15 inches. The Bahamas General Hospital, formerly known as the New Providence Asylum, was established in 1809 as a poor-house and hospital for the poor and infirm of the island. Since then the institution has grown steadily, and its functions have been extended in many directions. In 1845 it was placed under a board of commissioners appointed by the Governor, and now comprises the hospital proper, the infirmary, the dispensary, the lunatic asylum, and the leper compound. The number of inmates on Jan. 1st, 1911, was 128. During the year 647 patients were admitted, making the total under treatment 775, of whom 273 were discharged recovered, 106 relieved, 24 discharged not improved, and 102 died. Every year many cases are received in a hopeless—often moribund—condition. The assistant surgeon visited 430 cases at their homes on certificate from the relieving officer. It is probable that the accommodation for lepers will in the near future have to be enlarged and improved in view of the compulsory segregation of lepers which is under consideration. An Act has been passed by the legislature providing for the reorganisation of the medical department of the colony. The most important change is the creation of the office of chief medical officer and the substitution of a colonial surgeon for the assistant surgeon. A convict has been executed in the colony for a murder effected by administering the poison known as "Rough on Rats."

SCALPING BY MACHINERY.

Dr. I. D. Chepmell writes:—"In 1847 I took a course of surgical dressing at the Manchester Infirmary, now long since pulled down. In consequence of its central position Manchester at that time enjoyed a special reputation for bad accidents and rare surgical operations. The new railways and the new cotton mills furnished frequent opportunities for novelties in surgery not met with elsewhere. One of special interest occurred during the autumn of that year. In most of the cotton mills there existed several long narrow rooms, some 7 feet in height, in which the machinery was set in motion by a powerful steel revolving shaft which ran down the whole length of this workroom. A number of girls were, during work hours, busy superintending the spinning-jennies and feeding the noisy bobbins. One of the workgirls, aged about 15, finding that her back hair was coming down, twisted her luxurious locks into a long pig-tail, and, unaware of the danger, threw up the mass of hair in order to form a topknot, and caught the revolving shaft with the tip. In one second the poor girl was snatched up and almost immediately liberated, falling to the ground with a shriek and minus her scalp, which was seen revolving round and round above the heads of the workers. At once brought to the infirmary she was placed in the

ward in which I was at work. Had the scalping been done by the most practised Red Indian it could not have been more perfect, and a line running round the head about half an inch above the ears limited the tremendous wound left by the accident. Although the surface of the cranium was bared to the periosteum the bleeding had entirely ceased. Appropriate dressings, often renewed, encouraged healthy granulation, and in six or seven weeks the girl was able to wear a cap, the skin gradually covering the injured region; but not one hair remained as a souvenir."

THE COLOUR SENSE IN RELATION TO THE EMOTION OF SEX.

Mr. George Henry Taylor, L.R.C.S. Edin., of New South Wales, sends us the following communication on a subject to which he has devoted much thought:—

"A percentage of human beings and birds have in common an inherited emotional factor which finds its expression in musical sounds. In bird life the musician is a male, excepting the rare cases where a caged female bird exhibits the emotion of song. The inherited emotion in each variety of singing bird is expressed in a sequence of notes peculiar to itself, although the quality of note may vary a little in different birds. By the selective breeding of caged birds the quality of note can be improved. For example, by mating finches of different varieties the offspring acquire a song which is a blend of the notes in the song of the male bird in each variety. Such birds are not fertile. No doubt the female bird admires with a keen appreciation the colour or song of her mate, but it is doubtful whether the colour or song of a male bird is a delight to others of his sex. A bird in a cage when singing appears to be in a state of rapture, and does not then give an observer the suggestion of intelligence as it does when, with head aslant, it is alert and observant.

"The period of sexual activity in singing birds alternates with a longer period of sexual calm, when male and female are associated in what is practically an asexual state. The sex song, therefore, of a singing bird is an emotional expression on the part of the male, sung under similar conditions season after season. There is an absence of the persistent sex-brooding of the human male and female, which extends throughout the sexual period of their life. The environment of the bird may change, but so slowly that it is practically the same year after year. The environment of the human unit, on the other hand, is comparatively unstable. The human male also appeals to the female through the emotions of song and colour, though he is more promiscuous in his loves than is the singing bird. The non-creative musical male interprets the appeal of musical sounds according to his degree of emotional appreciation and expression. The development of mind in human beings places male and female frequently on the same intellectual plane, and association on that plane may simulate a feminine element in the male, or a male element in the female, and occasionally the latter creates new manifestations of emotion in colour and music. But as a rule the female is appreciative of the emotion of music, and not creative of music itself. It is further to be noted that in birds colour and music are usually apart. The bird of brilliant plumage is nearly always songless, whilst the smaller singing bird is more frequently associated with sombre feathers. The description I have given in former notes of the expression of emotion in a colour-blind person, shown in his face and voice, was drawn from an extensive experience of men who, from a colour and musical standard, might be termed primitive persons (THE LANCET, March 9th, 1912, p. 683). A much less extensive experience apart from this class suggests to me that when a person is blind to red and green, and also indifferent to musical sounds, the condition I then described in regard to the voice is accentuated. I infer, therefore, that when a person with a keen appreciation of musical sounds is blind to red and green, there still may be a degree of colour recognition through sound. When a person blind to red and green is in contrast to a person with a keen colour sense, immediately prior to examination by Holmgren's wools, the condition common to each mind is a degree of expectancy. The face and attitude of the red green blind is suggestive of a person who is listening; the face and attitude in the other of a person who is watching. In my small experience of musicians I recognise two types. A colour type which is bright and joyous to instance Mozart, and a type which is introspective and gloomy with a comparative indifference to external objects, of which Beethoven may be taken as an example."

Our correspondent's arguments are speculative, but they deserve consideration.

VITAL STATISTICS OF GRENADA.

ACCORDING to the Colonial Blue-book, just presented to Parliament, the population of Grenada on Dec. 31st, 1911, was 67,848. The birth-rate for the year was 39·92 per 1000 and the death-rate 19·66. The year was a healthy one, and the deaths would have been even less in number but for the persistence of an epidemic of whooping-cough which commenced in 1910, and to which 145 deaths were traceable in the two years 1910–11. The rainfall was moderate, only 69·83 inches being recorded at Richmond Hill, in the south of the island, as compared with 94·15 in 1910 and 80·54 in 1909. In the colony hospital 971 patients were treated in 1911 (as against 1031 in 1910), of whom 674 were cured, 169 relieved, and 36 died. The daily average was 88·6 and the cost per patient £20 19*s.* 9*d.* The receipts for paying patients were £102, and the number of attendances in the out-patients' department was 1317. The status of the responsible medical officer in charge was changed, Dr. R. P. Cockin being appointed resident surgeon and bacteriologist in place of the officer formerly styled house surgeon. Preparations for the appointment of a European nurse-matron were also made by the construction of quarters for her in the hospital precincts, and plans and estimates were got ready for the construction of a maternity and lying-in ward, and for the extension of the dispensary, so as to enable the staff to undertake the dispensing of medicines to paupers and labourers in the three adjoining medical districts. In the Yaws Hospital 339 cases were treated, of whom 276 were discharged cured and 2 died, but not from yaws, death being due to other diseases. The daily average was 75 and the cost per head £10 12*s.* 11*d.* The resident surgeon remarks that "during the year a limited number of cases have been treated with salvarsan and the results obtained have been such as to justify further work being carried out with this drug. Some cases are at present under treatment in the institution and are making good progress." In St. Andrew's District Hospital the daily average of patients was 10 and the cost per patient £39 10*s.* 10*d.* 9071 prescriptions were compounded at the dispensary, the receipts for which amounted to £128 12*s.* In the Carriacou District Hospital 213 patients were treated, of whom 145 were discharged cured and 44 relieved; only 2 died. The daily average in hospital was 20·5 and the cost per patient £33 9*s.* 5478 prescriptions were compounded at the dispensary and the receipts were £20 11*s.* 5*d.* In the Lunatic Asylum the daily average of inmates was 130; 23 patients were discharged as cured and 9 died. The cost per head was £19 9*s.* Three cases of enteric fever occurred in the institution, but all recovered.

AUTOTOMY IN THE BUSH.

APROPOS of an annotation in THE LANCET of Sept. 21st, 1912, an Australian correspondent sends us a horrible story gleaned from the columns of the Melbourne *Argus*. It concerns the death of a man named Daveney, whose dead body was found on Terrick towards the end of last October. Daveney, the newspaper report says, when passing a tree evidently heard some young galahs. "He stood up on horseback, and put his arm down a hollow limb in which the nest was situated. His horse walked away, leaving Daveney swinging in mid-air. He took a pocket-knife out of his trousers pocket and started to cut the imprisoned arm off at the shoulder, but he failed. Then he started to cut it off at the elbow, and succeeded. When he fell from the tree he walked a few yards, but lay down, and died apparently from loss of blood. The trunk of the tree was covered with spur marks, showing where he had tried in vain to grasp it with his leg in order to relieve the strain. The part of the arm which was cut off, and which was left in the hollow, was only extricated with great difficulty."

THE ASSAY OF DIGITALIS.

IN an annotation under the above heading in our issue of Dec. 21st, 1912, we referred to a colour test for digitalis described by Mr. W. H. Martindale, Ph.D. The author mentioned that there was a chance that the tincture might become weak physiologically, and yet might give the same colour test as originally, a point which can only be decided by keeping a tincture for a length of time. In a communication recently received from Mr. Martindale he now reports to us the results of a test made with "a really old digitalis tincture" which he was able to secure. They are as follows: (1) That his chemical assay process can be relied upon for a tincture up to 12 years old; and (2) physiological tests confirmed the chemical finding in regard to the old preparation. It is a very interesting fact that a tincture 12 years old should show activity at all, and, as Mr. Martindale points out, such a statement would have been generally discredited. Not less interesting is the ability to confirm the activity of digitalis by Mr. Martindale's chemical test.

MEDICAL CARE IN THE NURSERY.

Dr. E. M. Brockbank has written a small book, entitled "Children: their Care and Management" (London, Henry Frowde, price 3*s.* 6*d.* net), in which certain old superstitions of the nursery are perpetuated and an air of final authority is given to them, which is unfortunate. On the other hand, there are some decidedly good points in the book, and to most of the advice on the subject of both breast and artificial feeding no possible exception can be taken. To be used in conjunction with this nursery guide we have before us a little box of "first aid" necessaries for employment in emergencies. It contains bandages, lint, wool, strapping, a bottle of carron oil for burns, and a bottle of ipecacuanha wine and a few other essentials. The box is prepared according to Dr. Brockbank's directions by Messrs. James Woolley, Sons, and Co., Limited, of Manchester, and should prove quite a useful adjunct to a well-equipped nursery.

THE Honorary Secretary, Mr. C. A. Raison, University Club, Birmingham, asks us to announce that a dance, under the auspices of the Birmingham School of Medicine, will be held in the Edgbaston Assembly Rooms on Tuesday, Jan. 21st, and that early application for tickets is desirable.

Dr. R. Ackerley.—The article referred to in the annotation in THE LANCET of Dec. 14th, 1912, by M. Guéniot on the Influence of the Chemical Composition of the Air on the Vitality of Microbes appeared in the *Bulletin de l'Académie de Médecine*, No. 34, Séance du 15 Oct., 1912. It is published by Masson (120, Boulevard Saint Germain, Paris), but could be seen in any medical library.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

FRIDAY.

SECTION OF LARYNGOLOGY (Hon. Secretaries—Dan McKenzie, E. A. Peters): at 4.30 P.M.

Cases and Specimens:

Will be shown by the President (Mr. Herbert Tilley), Mr. Cecil Graham, Mr. Geo. Badgerow, Mr. L. Colledge, Mr. C. W. M. Hope, Mr. Coubro Potter, Dr. Jobson Horne, Dr. E. A. Peters, and others.

CLINICAL SECTION (Hon. Secretaries—Charles H. Fagge, W. Essex Wynter): at 8.30 P.M.

Cases:

Dr. J. D. Rolleston: Diphtheritic Hemiplegia.

Dr. F. Parkes Weber: (1) Non-syphilitic Arteritis Obliterans ("Thrombo-angiitis" of Leo Buerger) with Intermittent Claudication of the Lower Extremities; (2) Chronic Acholuric Jaundice with Anæmia, Slight Splenomegaly, and Nervous Disorder.

Dr. W. Essex Wynter: Acholuric Jaundice after Splenectomy.

Dr. Filip Sylvan: Cases of Pulmonary Tuberculosis Before and After Gymnastic Treatment.

Dr. H. D. Rolleston: Actinomycosis in a Syphilitic Subject.

And other Cases.

RÖNTGEN SOCIETY, Institution of Electrical Engineers, Victoria Embankment, W.C.

TUESDAY.—8.15 P.M., General Meeting. Prof. A. W. Porter and Mr. W. B. Haines: Spark Photographs at High Pressure.—Dr. R. Whiddington: (1) Some Relations between Cathode and Röntgen Rays (illustrated by lantern slides); (2) Demonstration of a Special X-Ray Tube Fitted with a Mechanical Hardening Device. A number of Prints from Prof. L. Dorn (Berlin) will be on exhibition.

HUNTERIAN SOCIETY, St. Bartholomew's Hospital, E.C.

WEDNESDAY.—9 P.M., Prof. A. Keith: The History and Nature of the Napoleonic Specimens in the Museum of the Royal College of Surgeons of England. (Hunterian Lecture.)

UNITED SERVICES MEDICAL SOCIETY, Royal Army Medical College, Grosvenor road, S.W.

WEDNESDAY.—5 P.M., Lieut.-Col. G. D. Hunter, D.S.O., R.A.M.C.: The Tactical Employment of Field Medical Units.

HARVEIAN SOCIETY OF LONDON, Stafford Rooms, Titchborne-street, Edgware-road, W.

THURSDAY.—8.15 P.M., Annual General Meeting. Election of Officers. President's Address. Followed by a Smoking Concert.

NORTH-EAST LONDON CLINICAL SOCIETY, Prince of Wales's Hospital, Tottenham, N.

THURSDAY.—4.15 P.M., Mr. J. Sherren: Gallstones.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East.

TUESDAY AND THURSDAY.—5 P.M., Major R. McCarrison, I.M.S., M.D.: The Etiology of Endemic Goitre. (Milroy Lecture.)

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. H. MacCormac: Clinique (Skin). 5.15 P.M., Lecture:—Dr. F. G. Bushnell: The Work of a Tuberculosis Dispensary.

TUESDAY.—4 P.M., Dr. H. Campbell: Clinique (Medical). 5.15 P.M., Lecture:—Dr. F. W. Price: Some Recent Advances in the Diagnosis, Prognosis, and Treatment of Heart Disease (illustrated by the polygraph).

WEDNESDAY.—4 P.M., Mr. H. J. Paterson: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. F. W. Price: Some Recent Advances in the Diagnosis, Prognosis, and Treatment of Heart Disease (illustrated by the polygraph).

THURSDAY.—4 P.M., Mr. J. Cantlie: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. F. W. Price: Some Recent Advances in the Diagnosis, Prognosis, and Treatment of Heart Disease (illustrated by the polygraph).

FRIDAY.—4 P.M., Mr. K. Campbell: Clinique (Eye). 5.15 P.M., Lecture:—Dr. W. Wingrave: Granuloma.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye.

TUESDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. Bishop Harman: Diseases of the Eye. Dr. Simson: Diseases of Women.

THURSDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. Bishop Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—Out-patient Demonstrations:—10 A.M. Dr. G. Holmes: Medical. Mr. H. Curtis: Surgical. 12 noon, Mr. G. N. Biggs: Throat, Nose, and Ear.—2.15 P.M., Mr. W. Turner: Surgery. 3 P.M., Mr. W. Turner: Operations. 3.15 P.M., Sir Dyce Duckworth: Medicine. 4.15 P.M., Mr. R. Lake: Ear and Throat.

TUESDAY.—Out-patient Demonstrations:—10 A.M., Dr. C. Singer: Medical. Mr. A. J. Walton: Surgical. 12 noon, Dr. H. MacCormac: Skin.—2 P.M., Mr. L. McGavin: Operations. 2.15 P.M., Mr. R. Carling: Surgery. 3.15 P.M., Dr. G. Rankin: Medicine. 3.15 P.M., Special Lecture:—Dr. G. Rankin: Glycosuria.

WEDNESDAY.—Out-patient Demonstrations: 10 A.M., Dr. F. Langmead: Medical. Mr. P. Cole: Surgical. 11 A.M., Mr. R. B. Bickerton: Eye.—2 P.M., Mr. L. V. Cargill or Mr. Choyce: Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.15 P.M., Mr. Cargill: Eye Clinique. 4.30 P.M., Mr. C. C. Choyce: Surgery. 4.30 P.M., Special Lecture:—Mr. C. C. Choyce: Some Extra Pulmonary Manifestations of the Pneumococcus.

THURSDAY.—Out-patient Demonstrations:—10 A.M., Dr. G. Holmes: Medical. Mr. H. Curtis: Surgical. 12 noon, Mr. G. N. Biggs: Throat, Nose, and Ear.—2 P.M., Mr. R. Carling or Mr. W. Turner: Operations. Dr. A. Davies: Pathological Demonstration. 3.15 P.M., Dr. R. Wells: Medicine. 4.30 P.M., Special Lecture:—Dr. C. O. Hawthorne: Mind Blindness.

FRIDAY.—Out-patient Demonstrations:—10 A.M., Dr. C. Singer: Medical. Mr. A. J. Walton: Surgical. 12 noon, Dr. H. MacCormac: Skin.—2 P.M., Mr. L. McGavin: Operations. 2.15 P.M., Sir John Rose Bradford; Medicine. 3.15 P.M., Mr. L. McGavin: Surgery.

SATURDAY.—Out-patient Demonstrations: 10 A.M., Dr. F. Langmead: Medical. Mr. P. Cole: Surgical. 11 A.M., Mr. R. B. Bickerton: Eye.—10 A.M., Dr. W. Steuart: Radiography.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC Queen-square, Bloomsbury, W.C.

TUESDAY AND FRIDAY.—3.30 P.M., Clinical Lecture:—Dr. H. Howell: Trauma in Relation to Nervous Disease.

SALFORD ROYAL HOSPITAL.

TUESDAY.—Dr. J. B. Macalpine: Incontinence of Urine. (Post-Graduate Demonstration.)

For further particulars of the above Lectures, &c., see Advertisement Pages.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Jan. 1st, 1913.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Dec. 26	29·46	S.W.	0·36	60	49	44	45	46	Raining
,, 27	29·72	S.W.	0·51	56	56	41	41	43	Overcast
,, 28	29·63	S.W.	0·22	62	56	43	52	55	Cloudy
,, 29	29·75	W.	0·09	63	48	42	43	45	Cloudy
,, 30	30·25	S.W.	...	62	48	42	41	42	Fine
,, 31	30·18	S.W.	...	70	51	42	45	48	Overcast
Jan. 1	29·94	S.W.	...	49	46	43	42	44	Fine

The following journals, magazines, &c., have been received.—British Review, Bristol Medico-Chirurgical Journal, Annales de Gynécologie et d'Obstétrique, Archives of Internal Medicine, Le Nourrisson, Journal of Obstetrics and Gynæcology of the British Empire, Interstate Medical Journal, Edinburgh Medical Journal, Transactions of the Society of Tropical Medicine and Hygiene, Deutsche Zeitschrift für Nervenheilkunde, Quinzaine Thérapeutique, Indian Medical Gazette, Indian Medical Record, Canadian Medical Association Journal, Journal d'Urologie, Annali dell' Istituto Maragliano, British Journal of Dermatology, Transvaal Medical Journal, Archiv für Schiffs- und Tropen-Hygiene, British Journal of Children's Diseases, Women's Industrial News, &c.

EDITORIAL NOTICES.

It is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. II. of 1912, were given in THE LANCET of Dec. 28th, 1912.

VOLUMES AND CASES.

VOLUMES for the second half of the year 1912 will be ready shortly. Bound in cloth, gilt lettered, price 16*s.*, carriage extra.

Cases for binding the half-year's numbers are now ready. Cloth, gilt lettered, price 2*s.*, by post 2*s.* 3*d.*

To be obtained on application to the Manager, accompanied by remittance.

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WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

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A DIARY OF CONGRESSES.

WE shall publish this diary from time to time that our readers may have under their hands the dates of the approaching scientific Congresses. It is unnecessary to issue the lists of all these functions week by week, and we propose to make only such gatherings as will occur in the immediate future the subject of regular announcement. The following Congresses, Conferences, and Exhibitions are announced:—

Dec. 31st–Jan. 11th, 1913 (London, Olympia).—Children's Welfare Exhibition.

In 1913:—

March 17th–20th (Paris).—International Congress of Physical Education.

(Easter week) (Berlin).—Fourth International Congress for Physiotherapy.

April 3rd–9th (London).—International Congress of Historical Studies.

„ 26th (Ghent) (opens).—International Exhibition.

Communications, Letters, &c., have been received from—

A.—Association of Clerks of the Second Division of the Civil Service, Lond.; A. C. J.; *Autocar*, Coventry, Editor of; Mr. E. Arnold, Lond.

B.—Mr. W. Bryce, Edinburgh; Mr. T. D. Bhattacharya, Kalna; Messrs. Burroughs, Wellcome and Co., Lond.; Bombay Medical Union, Secretary of; Dr. F. G. Bushnell, Woodford Green; Messrs. W. H. Bailey and Son, Lond.; Blackburn and East Lancashire Infirmary, Secretary of; Mr. C. Birchall, Liverpool; Baptist Missionary Society, Lond., Medical Secretary of; Dr. H. A. Bruce, Toronto; Mr. E. Bougault, Paris; Dr. J. B. Berkhart, Lond.; Major R. J. Blackham, R.A.M.C., Jutogh; Mr. R. V. Bapat, Kolhapur; Mr. H. Bayon, Cape Town; Bengal, Inspector-General of Civil Hospitals, Calcutta; Messrs. Bray, Gibb, and Co., Lond.; Mr. F. A. Brockhaus, Lond.; Dr. J. Wilson Black, Inverness; Mr. S. Boyd, Lond.; *The Bookseller*, Lond., Editor of; Dr. Dudley Buxton, Lond.

C.—Dr. W. R. Coldicott, Lond.; Coventry and Warwickshire Hospital, Secretary of; Captain D. J. Cooper, I.M.S., Deoli, India; Messrs. T. Christy and Co., Lond.; Messrs. Cordes, Hermanni, and Co., Hamburg; Cancer Hospital, Lond., Hon. Secretary Medical Committee of; Dr. S. M. Copeman, Lond.; Messrs. T. Craven and Sons, Manchester; Messrs. J. and A. Churchill, Lond.; Messrs. Cassell and Co., Lond.; Messrs. E. Cook and Co., Lond.; Messrs. Cowie and Co., Lond.; Dr. H. B. Christensen, New Westminster; Dr. P. J. Cremen, Cork; Mr. Raymond Crawfurd, Lond.; Dr. J. R. T. Conner, Lond.; Dr. Louis C. Colat, Battambang.

D.—Dr. C. C. Datta, Calcutta; Messrs. Duncan, Flockhart, and Co., Edinburgh; Messrs. Dowie and Marshall, Lond.; Dr. T. Dobson, Windermere; Dr. S. M. Dickson, Roodepoort; Miss May Doney, Lond.; Mr. H. Morriston Davies, Lond.; Miss J. S. Doak, Lisbon; Dorland Agency, Lond.; Messrs. W. Dawson and Son, Lond.; Durham County Asylum, Ferryhill, Clerk of; Derbyshire Royal Infirmary, Derby, Secretary of.

E.—Mr. A. R. Elliott, New York; Mr. Arthur Edmunds, Lond.; Messrs. Ehrmann Bros., Lond.; Messrs. W. H. Everett and Son, Lond.

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G.—Dr. G. M. Gray, Bridge of Weir, N.B.; Messrs. W. Gaymer and Son, Attleborough; Mr. E. W. F. Gibson, Lond.; City of Glasgow, Chemical Department; Govan District Asylum, Hawkhead, Medical Superintendent of; Dr. S. D. Graham, Newbury; Glasgow Lunacy District Hospital, Gartcosh, Medical Superintendent of; Goodyear Tyre Co., Lond.; Dr. H. M. W. Gray, Aberdeen; Mr. S. W. Fitzmaurice Gibson, Lond.

H.—Messrs. J. Heywood, Manchester; Dr. F. Hare, Beckenham Park; Messrs. Holland and Son, Lond.; Dr. J. B. Hellier, Leeds; Dr. W. B. Hill, Warlingham; Harveian Society of London; Mr. F. Hancock, Farnham Common; Messrs. T. H. Hewitt, Lond.; Lieutenant-Colonel E. Hall, I.M.S., Lond.; Dr. A. W. Harrington, Glasgow; Dr. Arthur J. Hall, Sheffield; Mr. W. Harrison-Martindale, Lond.; Huddersfield, Medical Officer of Health of; Hunterian Society, Lond.

I.—Messrs. I. Isaacs and Co., Lond.

J.—Messrs. J. F. Jones and Co., Paris; Mr. J. A. Jenkins, Kenfig; Mr. F. Johnson, St. Leonards-on-Sea; Joint Counties Asylum, Carmarthen, Clerk to the.

K.—Professor A. Keith, Lond.; Kensington and Fulham General Hospital, Lond., Secretary of; Fleet-Surgeon L. Kilroy, R.N., Plymouth; Kenny's Advertising Agency, Dublin.

L.—Dr. P. W. Latham, Lond.; Messrs. Lee and Martin, Birmingham; Mr. R. Lake, Lond.; Dr. W. C. Lyons, Bradford; Mr. S. G. Longworth, Melton; Mr. A. Lorette, Paris; Messrs. Lee and Nightingale, Liverpool; Local Government Board, Lond.; Mr. H. K. Lewis, Lond.; Dr. A. G. H. Lovell, Lond.; Messrs. R. T. Lang, Lond.; Mr. C. B. Lockwood, Lond.; London School of Tropical Medicine, Secretary of; Dr. R. Bruce Low, Lond.

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